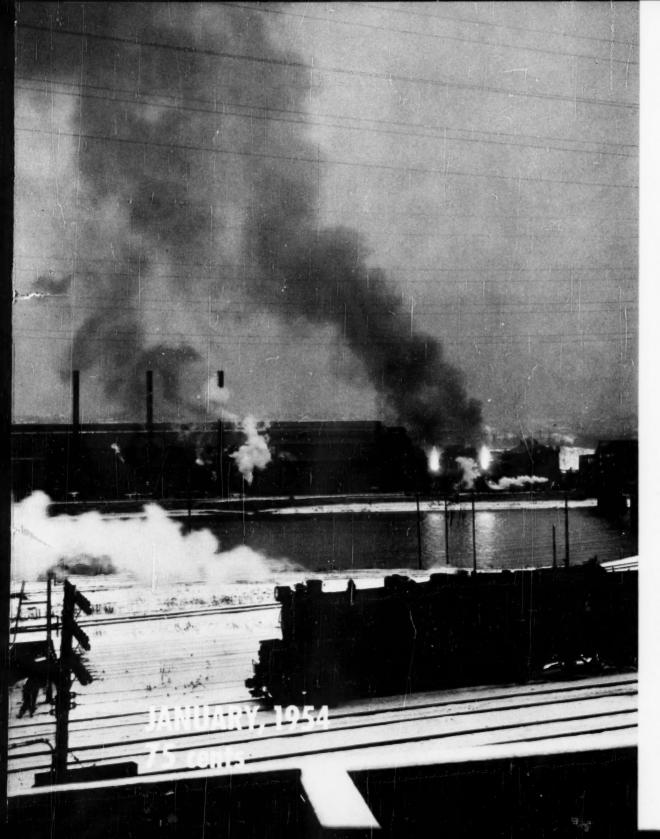
# DUN'S REVIEW and Modern Industry



For Operation SUCCESS



CLINTON F. ROBINSON
President, The Carborundum Company

T IS axiomatic that many factors beyond the control of any company have a significant bearing on its success. It is also true, if not axiomatic, that the proper planning of a business will result, within fairly narrow limits, in a positive control of, its degree of success irrespective of the outside factors.

Defining objectives and planning their fruitful conclusion is a high sounding phrase indeed, but when translated into more practical terms it is the comfortable practise of beating to the punch the accident of failure.

The contemporary industrial age is inexorably becoming more restrictive as compared to the era in which most American firms were born and thrived. While there is much to be learned from the past, it is the future to which we must now turn.

Continued on page 35

Another Transfer-matic by Cross

Automation
Cuts Costs—
But Brings
Problems

True automation is far more than a series of machines with automatic work handling devices. Because of this fact, many new production problems have been created. One of the major ones is that of downtime due to tool changing.

The Cross Company has been successful in overcoming this and other problems of automation. An example is the machine shown here which drills, reams and taps automatic transmission housings at the rate of 100 pieces per hour.

Cross sales engineers will gladly discuss any of your automation problems.

Established 1898

E

becial MACHINE TOOLS



#### DICTAPHONE CORPORATION, Dept. BI4 420 Lexington Ave., N. Y. 17, N. Y.

I would like:

☐ SUCCESS, a free, 12-page descriptive folder.

☐ A TIME-MASTER demonstration with no obligation.



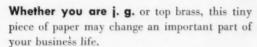
ame \_\_\_\_\_\_

Company.....

Company

& Zone\_\_\_\_\_State

# A coupon for executives who still want to grow -



It will bring you a simple 12-page booklet that shows how thousands in business, the professions and government have made the most of their time, got the best out of themselves . . . risen to new successes.

That's why this booklet is called SUCCESS. It is keyed to the truth that every executive is too busy—that each of us has only so much *time* to achieve

success. Our communications suffer—yet the thinking business world agrees that effective personal communication is what pushes men ahead.

This booklet tells you how hundreds of men faced with this problem have found the time to grow—to project themselves, their personalities and their ideas.

It takes only 30 seconds to fill in the coupon—and only 9 minutes to read the SUCCESS booklet. So—please get it on the way to you via your personal coupon. NOW!



The New Dictaphone TIME MASTER "5" . . . latest, lightest, finest model of the world's most popular dictating instrument.

# **DICTAPHONE®**

makers of the TIME-MASTER
America's #1 dictating machine



IT'S SAID-

AND DONE!



# Fast little folder... saves workers' time. cuts office costs!

move two knobs to adjust for any

desired folds...easy as tuning your TV.

Move Indicator knobs to widths wanted . . . And it's ready to go!

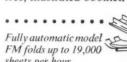
You see it happen often in your own office...an experienced, valuable girl neglects her regular work for hours-to fold form letters, bulletins or mail enclosures!

Hand-folding disrupts office routine, is a tedious job nobody likes, waste time-and is inexcusable these days. Because the little Pitney-Bowes FH Folding Machine can fold at least five times as fast as folding by hand.

With semi-automatic feed and electrically driven, the FH is fast, accurate and easy for any one to operate. It takes only a few seconds to set the FH for any job; simply

THE FH can make two folds at once; double-fold 81/2 x 11 sheets up to 5,000 per hour; make 8 different folds in sheets from 3 x 3 to 8½ x 14 inches, of many different paper weights; and even folds sheets when stapled together.

Little larger than a standard size typewriter, and costing less, the FH quickly pays for itself. Ask the nearest PB office for a free demonstrationor send the coupon for the free, illustrated booklet.



sheets per hour.

### PITNEY-BOWES **Folding Machines**



Made by Pitney-Bowes, Inc... originators of the postage meter ... 93 branch offices, with service in 199 cities in U.S. and Canada.

-	PITNEY-BOWES, INC. 1514 Pacific St., Stamford, Conn.
B.	Send free booklet on Folding Machine to:
Name	
Firm_	
Addres	S

# **DUN'S REVIEW** and Modern Industry

For Operation Success	Cover I and 35
The Better to Serve Small Business  Wendell B. Barnes Acting Administrator, Small Business Administration	25 □
They Looked at Their Problems and Licked Them  MARGARET L. JONES Executive Methods Editor	
On Getting the Most from Capital Expenditures  RALPH E. CROSS  Executive Vice-President, The Cross Company	40 - □
T-H Act: Stronger, Weaker?	
Effective English: Make It Work for You  MAURICE GRANEY Head, Department of Industrial Management, Purdue University	
Top-Level Sales Communications	
Observations on France Part II	52
How to Shrink Your Product to Expand Your Sa Annesta R. Gardner Industrial Editor	ales 54  □
The Why and How of Wage Incentives  Bruce Payne & Associates	60 \( \sigma \)
Progress through Participation	135

DEPART	MENTS
Heard in Washington 9	News from the Nation's Capital of special interest to top management
Voice of Business10  Thoughts of business men	What business men have been speaking about lately and how their thoughts run.
Photo Visit	Labor and time savers at the atomic energy plant in Paducah, Kentucky.
Letters to the Editor29  Pats, slaps, and ideas	Letters from all over—agreeing, disagreeing—the privilege of freedom.
Frontispiece	Ships are fascinating subjects for photographers—especially unloading.
The Trend of Business	Concise reports on the many facets of our economy.
Business Failures	Have failures gone up or down and is there any hint of future possibilities?
Executive Bookshelf 95  Behind the new titles	Reviews of the latest editions to the business man's library.

Subscription: \$5 a year in U. S. A. and Possessions, Canada, and Pan American Union. Elsewhere \$10. Single copy, 75 cents. Staff personnel and other information appears on page 166. Copyright 1954 by Dun & Bradstreet Publications Corporation. Copyrighted under International Copy-

and

#### JANUARY

1 9 5 4

Success depends on a variety of factors both within and without the company. Seeking objectives and planning their attainment is a big job.

The Small Business Administration must constantly change its policy in order to meet changing circumstances. These statements supplement the December discussion.

No matter how different, small, poor—or strong—the business, you can't afford not to use good management techniques. This case study proves the point.

When is the right time to make replacements in plant or equipment? When will such investments begin to pay the greatest dividends in over-all operation?

One of the major domestic issues facing Congress in its new session is amendment of the nation's basic labor law. How far may Congress go; in what direction?

The line of understanding between business and the community, management and worker, grows more tenuous. What is the trouble and how can it be cured?

Highlights from executive experience of five companies which have broken through roadblocks to efficient communications: how they are operating and why.

The second part of an article dealing with the internal economic and industrial problems of France. In what direction lies the solution?

Lighter weight, more-compact products fit to-day's trends toward space-saving, portability, open new markets, hold costs in line. Here's how its done.

Increased production and decreased costs are the goals now, and perhaps wage incentives provide the means, but objections due to past mistakes must be overcome.

With business expanding physically in all directions, the business man has an obligation to his community. A report on the National Council for Community Improvement.

#### DEPARTMENTS

Industrial Methods and Materials	New ways and means to better products and processes for advantages.
The Business Quiz	Questions and more questions, with answers, to provide leisuretime-learning.
Sales & Distribution	New developments, techniques, and ideas in these all-important fields.
Films for Management 141	What's playing these days. The latest in business and industrial films.
Employer Relations	How to have pleasant relations with the men who work for and with you.
Here & There in Business 157	How the business man is finding more ways of doing things better.
Our 48 States	A basically sound farm state looks to an industrial future.

right Convention. All rights reserved under Pan American Copyright Convention. The titles Dun's Reytew and Modern Industry are registered in the U. S. Patent Office. Cover: Steel Mills, Pittsburgh by Devaney. Frontispiece: Hibbs Photograph.

# **Safer than Slippery Flooring**



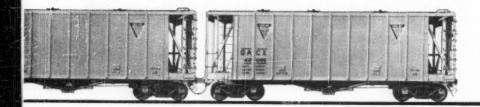
A matador is aware of the risks in his job but because SLIPPERY FLOORS GIVE NO WARNING—often look safe—workmen can be killed or hurt before they know their danger! A practical remedy is A. W. SUPER-DIAMOND—tough, rolled-steel floor plate with an exclusive, engineered raised-diamond surface. SUPER-DIAMOND puts 40 anti-slip traction points in every footstep—gives maximum foot safety at low cost. Investigate SUPER-DIAMOND for accident prevention. Write for new Booklet SD-1.

A.W. SUPER-DIAMOND

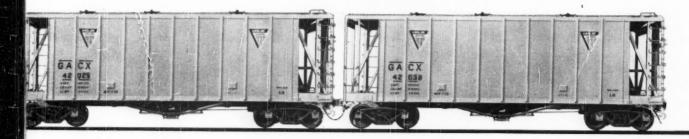


Economy Rolled Steel Floor Plate
ALAN WOOD STEEL COMPANY
CONSHOHOCKEN, PA.

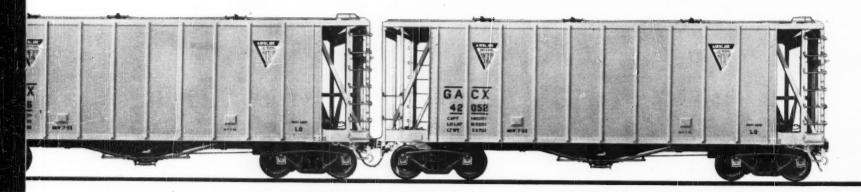
Other Products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate Plates • Sheet • Strip • (Alloy and Special Grades) Many more dry, granular and powdered materials



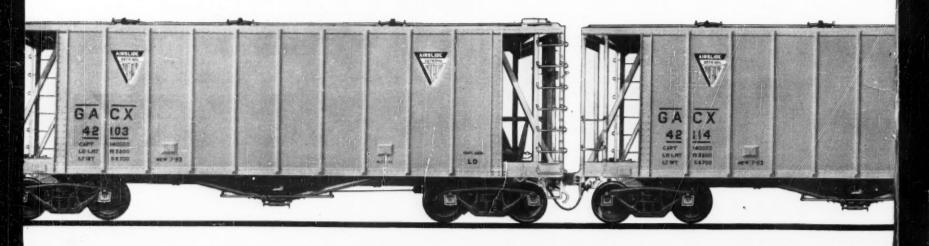
**GENERAL AMERICAN'S** 



AIRSLIDE CAR FLEET



IS ROLLING!



#### Shippers using Airslide cars have transported commodities never successfully handled in bulk before

General American's new Airslide car fleet has started operation after months of actual working tests. New cars are coming out of its shops for companies who have actually tested them -found their value. These facts were proved before the cars were leased:

- 1. Airslide car shipping costs less.
- 2. High or low density materials can be successfully loaded, carried and unloaded.
- 3. The expense of individual, small-unit containers can be eliminated.
- **4.** Airslide cars can be loaded by gravity and unloaded into any conveying system.
- 5. Ladings are protected against shrinkage and leakage with minimum possibility of contamination.
- **6.** General American can service Airslide cars in its own shops throughout the country just as GATX tank cars are serviced.

#### AIRSLIDE.

a trade mark of the Fuller Company, Catasauqua, Pennsylvania



#### FIND OUT ABOUT CUTTING YOUR SHIPPING COSTS

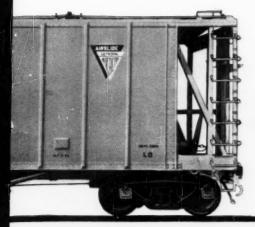
#### Airslide cars available for test shipments

These cars which shippers have sent from coast-tocoast with test shipments can now be used by other firms who would like to learn exactly how they can effect similar savings. General American's engineers will work with your traffic and production executives to set up these tests. Write for information.

#### Airslide in car avoids bridging and packing

On occasion in test runs, materials have packed so tightly that they could support the weight of a man. Yet the Airslide car unloading system quickly and easily "fluidized" the lading for complete, speedy removal from the car.

With approximately one pound of air pressure, the lading is aerated and flows quickly and evenly to the discharge points. This permits unloading into any type of conveying system.





#### GENERAL AMERICAN TRANSPORTATION CORPORATION

135 South La Salle Street · Chicago 90, Illinois Offices in principal cities

## **BUSINESS IN MOTION**

# To our Colleagues in American Business ...

Titanium melts at 3140°F., and copper at 1980°F. Hence most people would think it utterly impossible to melt titanium in a mold made of copper. Yet it is being done on a production basis. The trick is to make use of the high thermal conductivity of copper. The copper mold has a copper baffle wrapped in a spiral around it, and is inserted in a water jacket.

Water is pumped at high velocity through the jacket, and spirals around the outside of the mold. Heat from the molten titanium is transferred quickly and efficiently by the copper to the water, and thus carried off. The copper never comes close to its melting point.

This remarkable application of copper is just a part of the tremendous activity in the field of titanium. Many companies

are seeking ways to produce metallic titanium in large tonnages and at reasonable prices. Among other applications, it is used in certain jet engine parts that are subjected to high temperatures and the impact of gases that are moving at terrific velocities.

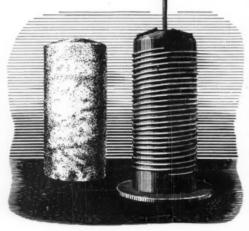
Eventually ways will be found to produce titanium in large volume at practical prices. This will be a

great boon. It is the fourth most abundant metal in the earth's crust, only aluminum, iron and magnesium being present in greater amounts. It can be easily forged, welded, and hot worked. There is every indication that it is a metal with a tremendous future.

Copper is man's oldest metal, and titanium the newest. In this ingenious copper mold the old assists

in the birth of the new. Copper serves in this way so often that for many years we have called it "the metal of invention." It helped make possible the telegraph, the telephone, electric light and power, and the multitudinous electronic devices used in communications, calculation, and medicine. For many centuries man has sought and found new ways to take advantage of copper's unique qualities.

It seems to Revere that there is something significant about this. Just because a material is old does not mean it cannot help in the search for the new, and thus advance the progress of us all. So we suggest that when modern developments engage your attention, older materials may be of assistance in reaching your objectives.



#### REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Avenue, New York 17, N.Y.

SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS



In the EVENT of a recession the first step the Administration plans to take is to arouse the people to the need of using their own ingenuity to meet the situation. They will not be encouraged to rely on Government. Money supply will be kept adequate. Financial aid will be extended, where needed, to encourage roadbuilding and other public works. There will be little, if any, direct hiring of labor. Loans will be made to contractors. Thus the money will be fed in at the top where it can be capitalized and not at the bottom where the dollar works only once. Less reliance will be placed on public works than heretofore. Tax reduction will be sought as an additional means of relief.

\* \* \* \* \*

Further decided reduction in defense spending is in prospect. It will be achieved largely through cuts in manpower in the armed forces. The campaign against waste and extravagance is continuing relentlessly.

\* \* \* \* \*

Sentiment is strong in Congress for the 0.5 per cent advance in Social Security rates. Postponement of the advance now, it is argued, would mean a steeper increase later to meet the demands of an increasing population. However, if the rate is allowed to go up it would reduce the amount of take-home pay. That might influence some legislators in an election year.

\* \* \* \* \*

No crusade against existing public power projects is contemplated by the Administration, but any new public project will be scrutinized very closely. Public projects already in operation will not be disturbed although trick bookkeeping will be banned. The Administration is convinced that public bodies, in most instances, cannot operate as efficiently as private enterprise. It is willing, however, to give present public projects opportunity to demonstrate what they can do when their costs and service are fairly compared with privately owned companies.

\* \* \* \* \*

Strikes on New York newspapers, on the waterfront, and in defense aircraft plants make tightening of the Taft-Hartley Act more likely. President Eisenhower has felt, and apparently still feels, that some concessions should be made to labor in amending the Act. The demonstration that a few men have such far-reaching power gave the people quite a jolt. Legislators, always sensitive to public opinion, seem disposed to run counter to the Administration's wishes in amending the labor act. Justice Burton's finding that "there is no more elemental cause for discharge of an employee than disloyalty to his employer" struck a popular chord which was duly noted by those in politics.

\* \* \* \* \*

Loss of revenue in the critical period just ahead is the principal obstacle in the path of a wider application of rapid tax amortization. A majority in Congress would like to vote for it, but they do not want to reduce next year's receipts. Larger deductions for depreciation would encourage capital expenditures; it would make borrowing easier and would help new companies get started. No ultimate loss of revenue would be involved unless the rate of taxation were to be reduced.

\* \* \* \* \*

Most countries prefer taking their chances in the market rather than joining up in agreements. Proposed global price props are largely talk. Bilateral deals which will assure this country adequate supplies of essential imports will be worked out after the customary haggling that goes with trading.

\* \* \* \* \*

Legislation restricting oil imports seems unlikely but importers are curtailing shipments voluntarily.

Paul Wooton



# VOICE OF BUSINESS

Free trade advantages; importance of tariffs; consumer sovereignty; local responsibilities; the return to selling; opportunity for engineers; advantages of dispersal; railroads for research.

Expanded trade and world peace



". . . . vital forces of a vastness. . . "

#### HENRY FORD II

President, Ford Motor Company, before Committee for a National Trade Policy.

It seems to me that the longrange implications of our tariff policy are even more important than its short-range impact.

World War II accelerated new and vital forces of a vastness which we are only now beginning to grasp. In Latin America, it set off economic development which is rapidly raising the living standards of that area. It awoke the slumbering civilizations of the Far East and stimulated the development of Africa's resources.

Clearly, within the foreseeable future—within the active lives of most of us and certainly in our children's time—these areas will account for a far larger part of the trade and wealth of the world than they do to-day.

The long-term question which confronts us—leaving aside the problem of war or peace—is how we are going to live with these growing areas.

Shall we conclude fearfully that we must abandon our rich trading position in the world and hide behind tariff barricades?

Or shall we regard this growth as opening untold new opportunities for mankind? Shall we see vast

new markets opening not only for existing products but — perhaps even more important—for products which do not yet exist, and which the United States will be better able to create than any other nation in the world?

If we follow that course, we will move ahead staunchly in the traditions which made us strong. We will face the competition of others. We will take advantage of opportunities as they arise. And in so doing we will grow in stature and the American people will prosper.

"Let's not import depression"



"... a sufficiently ugly potential..."

#### CALVIN A. CAMPBELL

Vice-President and General Counsel, The Dow Chemical Company, before American Tariff League.

The other day we took the annual dollar value of all the products we in Dow Chemical make that are subject to import duties. Then we reduced this figure by the amount of duty that would apply.

In other words, we reduced our selling price by the amount of the duty on the number of pounds we sell. And we found out that on this assumption our profits would be completely wiped out. In fact, we came out in the red.

Now we can set this against the wages we pay and find that in order to maintain our profit we would have to reduce our total labor bill by more than 50 per cent. I don't know whether we fire half of our employees or simply cut all their wages in half.

The obvious fallacy in this is that it assumes that foreign industry would be ready, willing, and able to enter our markets with sufficient quantities of all these items and at prices represented by the tariff differentials.

This, of course, would presumably *not* be the case. So we cannot say, "This is what would happen to us." We can only say, "This is what could happen to us."

But, I can assure you that this is a sufficiently ugly potential that we in Dow Chemical are not inclined to regard free trade agitation with a light heart.

### Consumer sovereignty is inviolate



"priceless right of consumers."

#### WALTER E. BOTTHOF

Chairman of the Board and Publisher, Standard Rate & Data Service, Incorporated, before Rotary Club, Evanston. Ill.

Has business failed to educate the American consumer in an intelligent understanding of our free enterprise system? I think it has, and this in spite of the overwhelming evidence of its superiority over any other system on the face of the earth.

There are those who condemn brand names. The brand name on a product is the manufacturer's proud stamp of identity. It's his guarantee that he stands back of his product.

There are those who condemn attractive packaging, overlooking the great contribution which packaged goods have made to greater sanitation. Would they go back to the old unsanitary open butter tub and the cracker barrel?

There are those who condemn advertising as a means of misleading and confusing the buyer and rendering the consumer incapable of rational decision.

Advertising must give credit in large measure to the intelligence of



# eliminate towel waste with WESTROLL!



The Westroll towel dispenser has relatively few working parts, so its maintenance factor is negligible. Westroll dispensers are streamlined, easy to keep clean. They assure a constant supply of towels, help keep washrooms spic and span, save costly janitors' time.

It's human nature to take advantage of an overly generous paper towel dispenser. Particularly so with interfold or flat towels where two, three or even four are used for one drying. But with Westroll, people tend to take just enough and no more. You save as much as 40% on towel costs.

Tests show Westroll users average only 17 inches of paper, against 22, 33, or 44 inches of interfold. Users can crank out exactly the amount of towel necessary – even as little as two inches for lipstick removal! These are immediate savings.

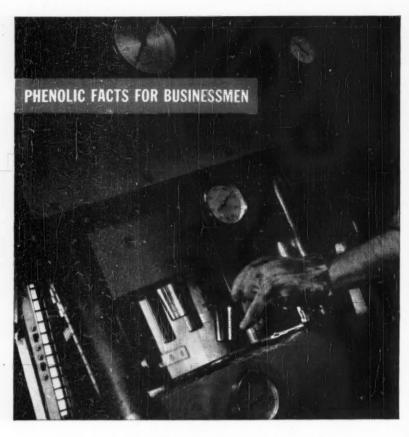
You also save on maintenance. One filling of a Westroll micromatic dispenser is equivalent to four fillings of the ordinary flat-towel dispenser. Westroll dispensers are loaned and maintained by West.

Westroll towels are outselling our interfold towels 20 to 1. No customer has ever switched back to interfold towels after trying Westroll!



42-16 West Street, Long Island City 1, N. Y.

# WANT DETAILS? Tear out this coupon and mail with your letterhead Dept. 1 I'm Interested In: A FREE leaflet on WESTROLL. A talk with a West expert about my washroom problems. No sales pitch. No obligation. Just discussion and a demonstration if I want it.



## Ever see your reputation close-up?

• We see ours every day. Indeed we make such a point of it that, when no press meeting our standards for examining the flow value of plastics was available, we designed this new type ourselves. The test pieces it turns out are part of the quality control program on which the Durez reputation rides.

Assuring the highest possible uniformity from batch to batch, this press is one of the many behind-the-scene reasons why thousands of manufacturers put their faith in Durez phenolic resins and molding compounds. Others include Durez laboratories full of experimental and testing apparatus

and groups of hard-to-please men.

So when you lay your company's reputation on the line with Durez materials, you may be sure there are no better of their type. We've been specializing in the phenolics — most versatile of all plastics — for 32 years. We'll gladly work with your molder or your own staff in applying them profitably to your needs.

Why not write (on your letterhead please) for our monthly "Plastics News," reviewing industry's newest uses of Durez? Durez Plastics & Chemicals, Inc., 1901 Walck Road, North Tonawanda, New York.



PHENOLIC PLASTICS THAT FIT THE JOB

the buyer. Its educational value recognizes that the sovereignty of the consumer is inviolate. What is consumer sovereignty but the priceless right of consumers to buy what they want, when they want it, where they want to buy it?

Shall we gear our appeal to the level of the ignorant or shall we appeal to the intelligent and educate the ignorant?

## Responsibility at local level



".... solve its own problems."

#### CLIFFORD F. HOOD

President, United States Steel Corporation, at annual dinner of The Greater Philadelphia Movement.

The nation must build a stout structure of national defense. It must erect a strong edifice of international policy. But it seems to me that local government—the city, the schools, the county—form the supporting beams of our political system.

If those beams are allowed to be eaten away by the voracious termites of blight, traffic congestion, squalor, and the packing of too many people into too little space, then surely the whole system may be jeopardized.

If the local communities do not meet their responsibilities, surely the federal and state governments will step in, to a greater degree than they ever have. That would bring more centralized, remote-control governing of our cities and counties than we have ever known or ever desired.

The present national administration has expressed the policy that the Federal Government should exert less, rather than more, control over the other levels of government; that they should be made less dependent on Washington. That policy strikes me as a good one.

But if that policy is to be carried out, doesn't it mean that local government—backed up by strong civic leadership—must demonstrate the will and the ability to solve its own problems?

Since the solution of those problems will cost money, doesn't it mean that our whole patchwork tax structure should be thoroughly overhauled, so that local government will have the resources to do its own job, without making the total tax burden on the American people more onerous than it is now?

#### Business gets back to selling



"... remove some of the complacency.

#### DON G. MITCHELL

Chairman of the Board of Directors, Sylvania Electric Products Inc., at company's annual Electronic Products Sales Conference.

Next year will mark the first year in entirely too many years that business will have to get back to selling. I can't think of a better way to sum up what I mean than to repeat a favorite phrase of mine these days: "Business will be good for the business man who makes it good."

Or to put it another way, business will decline just enough to remove some of the complacency which has been so characteristic of business as a whole for entirely too long a time.

## The making of decisions

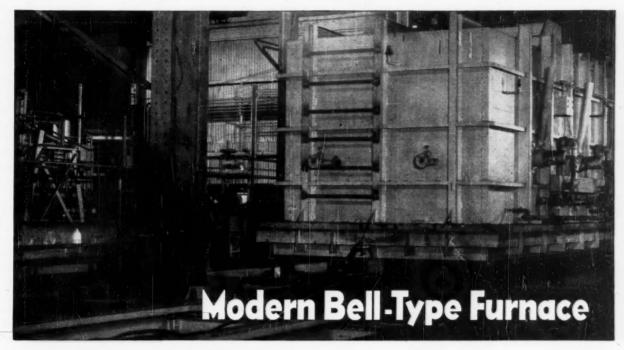


"... not the easy and obvious ones."

#### FREDERICK S. BLACKALL, JR.

President and Treasurer, The Taft-Peirce Manufacturing Company, Woonsocket, R. I., and President, American Society of Mechanical Engineers, before Pi Tau Sigma chapter at University of Connecticut.

Decision is perhaps the most difficult of all the tasks which face us in life. Why else is it that the man







# The NEW EXECUTONE Intercom saves time, increases output!

Add up all the time that's lost by key personnel running back and forth for information. Add up the time wasted by switchboard "bottlenecks."

The NEW EXECUTONE turns this lost motion into productive working time with convenient, instant voice-to-voice contact.

#### Get "Inside" Calls off your Switchboard

With EXECUTONE you talk to any department as often as necessary...freeing your switchboard for "outside" calls. Voices are amazingly crisp and clear. Low cost Executone quickly pays for itself in dozens of ways. Get the whole story—no obligation!



EXECUTONE, INC., Dept. A-1 -415 Lexington Ave., New York 17, N. Y.
Without obligation, please send me data on Executone for:
☐ INTER-OFFICE COMMUNICATION ☐ SWITCHBOARD RELIEF
☐ INTRA-PLANT COMMUNICATION ☐ LOCATING PERSONNEL
NAMETITLE
FIRM
ADDRESSCITYCITY

In Canada-331 Bartlett Ave., Toronto

at the top of a business or institution is generally the most highly paid? Primarily, because (in spite of his many privileges) he has to make sound decisions.

The types of decisions which a manager has to make are not the easy and obvious ones. They concern problems in which there are, let us say, 49 reasons why a certain course of action should not be taken, and 51 reasons why it should be. Which is the better course? Which will succeed? This sort of decision takes real thinking and the ability to evaluate.

## The opportunity for the engineer



"... eager to make their contributions."

#### J. A. HERLIHY

Vice-president, engineering and maintenance, United Air Lines, Inc., before Young Engineer's Forum, Western Society of Engineers.

There was a time not so many years ago when a young man dreamt of becoming a financial tycoon if he wished to exert any substantial influence on this country's economic progress. To-day's young man more likely is thinking in terms of the research laboratory, the engineering department, and the production line as a place where he can have a hand in perfecting the machines and techniques which contribute to our social and economic growth. To such men, eager to make their contributions, I say that the opportunities are almost limitless.

All in all, it appears that 1959 or 1960 is about the earliest that US jetliners might be in operation.

Meanwhile, the opportunities which exist in aviation for technical people, as illustrated by the turbine transport development, are great indeed. These turbine projects are going to be more challenging than anything we've had heretofore in terms of ingenuity and good judgment of our engineering staffs—and, of course, the multitude of technical problems will mean that

these staffs must be adequate as well.

Young engineers have an opportunity now to step into an established industry. Air transportation has become a highly accepted and vital part of our nation's social and economic life. Ever higher horizons are before us and we look to the new crop of engineers to help us realize the considerable promise which those horizons spell for us.

## Mobility Leads to decentralization



"... one of the end

#### FRANK W. ABRAMS

Chairman of the Board, Standard Oil Company (New Jersey) before Boston Chamber of Commerce.

There is no longer any particular need to concentrate production in large plants at big transportation junction points—at least this need no longer exists for a great many industrial operations. A manufacturer can now recruit workers from a radius up to 30 miles from the plant.

In fact, it has become apparent to managements that dispersal is likely to offer many special advantages—among them room to build efficient plants at less cost than in congested districts, and living conditions for employees which promote a productive and stable working force. And as a by-product, an important contribution is made to the security of the nation in this age of atomic peril.

An enlargement of the range of free choice and of competitive opportunity is a sometimes overlooked consequence of this greater mobility made possible by motor vehicles powered by an adequate supply of reasonably priced gasoline. The net result is that competition now has a very much larger field in which to be effective. The aggressive salesman can get into any market if his "line" is a good one.

Shopping centers with parking spaces for thousands of cars are springing up in suburban areas throughout the country in competi-

tion with the city shopping districts. Merchants in City A are sprucing up their stores and improving their services because they have discovered that their customers will cheerfully drive 20 miles to City B for a wider range of merchandise or better values.

What this all adds up to, it seems to me, is a pattern in which industry will be more and more removed from the cities; manufacturing of all kinds—except for a few heavy industries—will be more generally distributed throughout the country; more people will live in small communities.

Is not this the basis for a way of life in which our democratic society may flourish more vigorously than ever? With increasing decentralization of work and living, may not more people take a hand in government at the local level and share more fully the responsibility for the community's welfare?

Is not the increasingly greater freedom of choice as to where we should work, where we should live, what we should spend our money for, what we should do with our leisure time, one of the end results we want from harnessing abundant power to human uses?

# The "right" side of the tracks



"... transcontinental testing laboratory."

#### WILLIAM WHITE

President, New York Central System, before Investment Bankers Association of America.

There is probably more research in the railroad industry than in any other. While you very seldom see a white coat or a test tube in a railroad advertisement, we are nevertheless a research industry. A railroad itself is a test tube because the railroads and their suppliers have learned that no testing is so useful as actual service tests.

The entire railroad plant of this country serves as a transcontinental testing laboratory where investigation of new methods and materials never ceases.

and

# **Get Sharper Photocopies**



with the **NEW Peerless DRI-STAT** Process \*

enciled notations, colored inks, stenciled or spirit-process duplicated matter - anything on the original will reproduce clearly in a DRI-STAT photocopy. Halftones come through clean, not muddied. Areas printed in color will reproduce in black-and-white without losing detail. Even originals on colored stock make clear DRI-STAT copies.

DRI-STAT papers - the result of many months of Peerless research - possess greater latitude of response, can copy a much wider range of original matter. Careful balancing of the emulsions on DRI-STAT papers with the chemicals in the processing solution gives you a print with good blacks and clear whites in sharp contrast - often better than the original.

#### Why Retype, Retrace, or Rewrite it? DRI-STAT it

Anyone in your office can quickly master the technique of making DRI-STAT copies. No extra help with special training is needed. No darkroom is needed.

#### Convenient, Compact, Fast

DRI-STAT equipment can be used right in the departments that need photocopies. The originals never leave your possession. Copies are ready in less than one minute. Units plug into any 110-volt a-c. current.

Clip or staple to your business card or letterhead ->

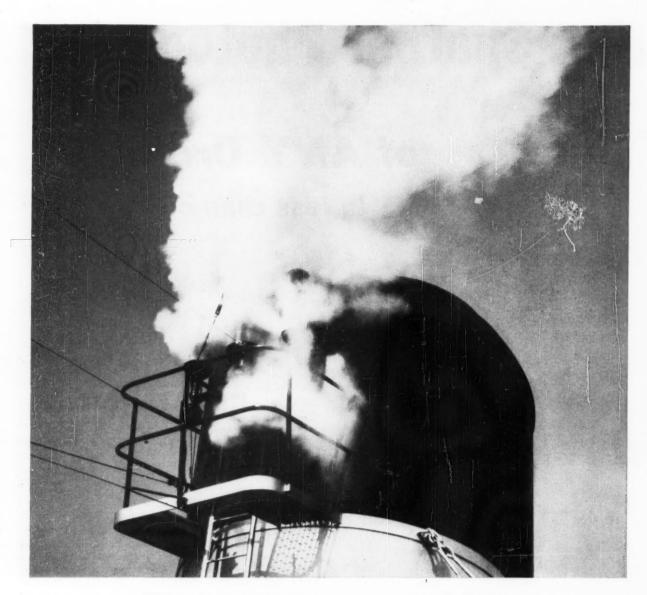
#### A Tested, High Quality Product

DRI-STAT papers are manufactured by Peerless Photo Products, Inc., well known for its high quality photocopying materials and particularly for dependable batch-to-batch uniformity. DRI-STAT is sold only through factory-trained Peerless distributors, well qualified to give you professional counsel on modern reproduction methods.

#### Ask for a Demonstration

Try DRI-STAT papers and machines on your own work. For a demonstration, call or write your nearest Peerless distributor. If you're not sure of his name, clip and mail the coupon and we'll put you in touch with him.





#### Who puts the money on the line?

Read how banks help the shipping industry transport cargoes and travelers to and from every corner of the earth.

When goods move money moves. As a result, banking and shipping are inseparable. Here's why!

Today, shipping's men of action: the builders, owners, masters, chandlers and fitters are concerned with one thing—moving cargo and people quickly and safely to any port of call in the world. But to handle the complex money exchange involved in foreign trade, and to be sure of a ready source of funds for any operating contingency, both shipping men

and shippers "sign on" the bankers.

#### Money moves ships

To begin with, bank loans help finance the operation of every type of merchant ship sailing the high seas or plying the nation's inland waterways.

Most important, bank loans finance cargoes to and from the markets of the world—and even provide quick cash for tariff charges. Banks arrange for the fast transfer of money to shipping agents, arrange for payment of toll charges through the Panama and Suez Canals, and in many other ways help speed the passage of ships and the movement of goods.

#### How you benefit

Even if you never set foot on a gang-

plank, you inevitably benefit from the millions of dollars banks pilot directly and indirectly through the shipping industry. This is so because wherever and whenever banks put a community's idle money to work, men and women work, too. As a result, money moves and circulates, thereby helping to stabilize the whole economy and maintain a high standard of living.

The Chase National Bank, first in loans to American industry, is proud of banking's contribution to the progress of our country.

#### The CHASE National Bank

OF THE CITY OF NEW YORK
(Member Federal Deposit Insurance Corporation)

# LABOR AND TIME SAVERS

## at Paducah's Atomic Project



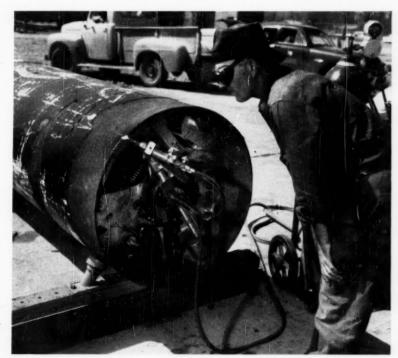
Models of sheet-metal items are used to impress shop workers with the intricacies of components, and as an aid in instructing installation crews. Here, field supervisor views an overhead duct installation in miniature.

PHOTO VISIT

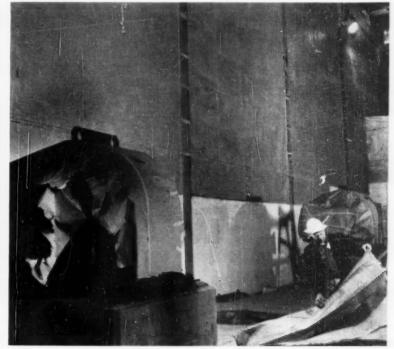
GENERAL construction work at the new atomic energy project near Paducah, Ky., has been completed ahead of time. Despite the size of the project (F. H. McGraw & Company is the prime construction contractor) and the many labor problems, the schedule deadline was beaten largely through the ingenuity and innovations of personnel. Some of the small, helpful details that speeded the job, and saved money and manpower are caught here, and in the following pages, by the camera.

Craftsmen, supervisors, and workmen all had a hand in them. The modern practises, new techniques, and unique applications of proved construction methods which were used ranged through all fields of endeavor: administration; construction field practises; special shops and quality-control laboratories; unique engineering design.

In December 1950, the AEC announced plans for the project. In January 1951, construction of the \$1 billion U-235 facility began.



For automatically cutting the ends of large pipe in order to prepare them for welding, this torch is answer. As it cuts the end of the pipe, torch is rotated by a spring-driven device. Project has own welder-training lab.



Temporary air-tight barriers to isolate process areas are quickly and economically constructed by spraying a liquid plastic material on wire mesh (ordinary chicken fencing). Later, the barriers are reused as tarpaulins.

# steel stocks again complete

For years, as you well know, the demand for steel has exceeded the supply. So while we have been able to furnish many thousands of tons from our stocks, all kinds and sizes have not always been available.

Now we are glad to report that our stocks of Ryerson Certified Steels are large and complete. Even though the continuing strong demand still depletes a size here and there, you will find carbon steels, alloys, stainless—everything you need—on hand for quick shipment from your nearby Ryerson plant.

So call us whenever you need steel or have any question regarding what steel to use or how to fabricate it. Our experienced steel men will be ready to help you—and we can promise you prompt, dependable service.

#### PRINCIPAL PRODUCTS

CARBON STEEL BARS—Hot rolled and cold finished.
STRUCTURALS—Channels, angles, beams,

etc.

PLATES — Many types including Inland

A-Way Safety Plate.

SHEETS — Hot and cold rolled, many types

and coatings.

TUBING—Seamless and welded, mechanical

and boiler tubes.

ALLOYS—Hot rolled, cold finished, heat treated. Also tool steel.

STAINLESS—Allegheny bars, plates, sheets, tubes, etc.

tubes, etc. **BABBITT**—Five types, also Ryertex plastic bearings

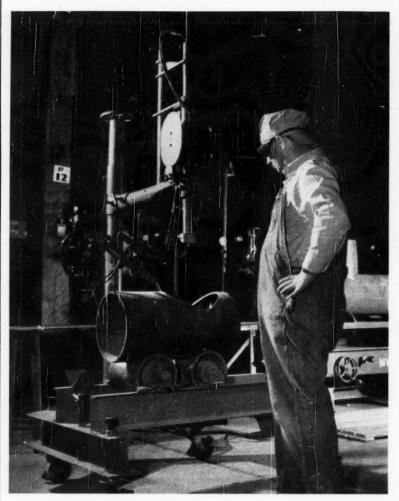
MACHINERY & TOOLS—For metal fabri-

# RYERSON STEEL

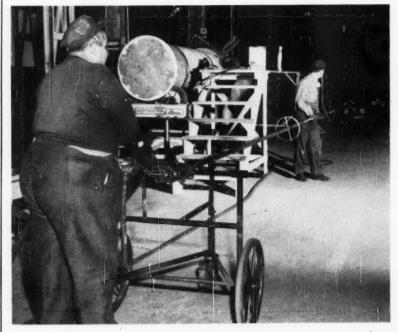
JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK \* BOSTON \* BUFFALO \* PHILADELPHIA

CHARLOTTE \* CLEVELAND \* DETROIT \* PITTSBURGH \* CINCINNATI \* CHICAGO

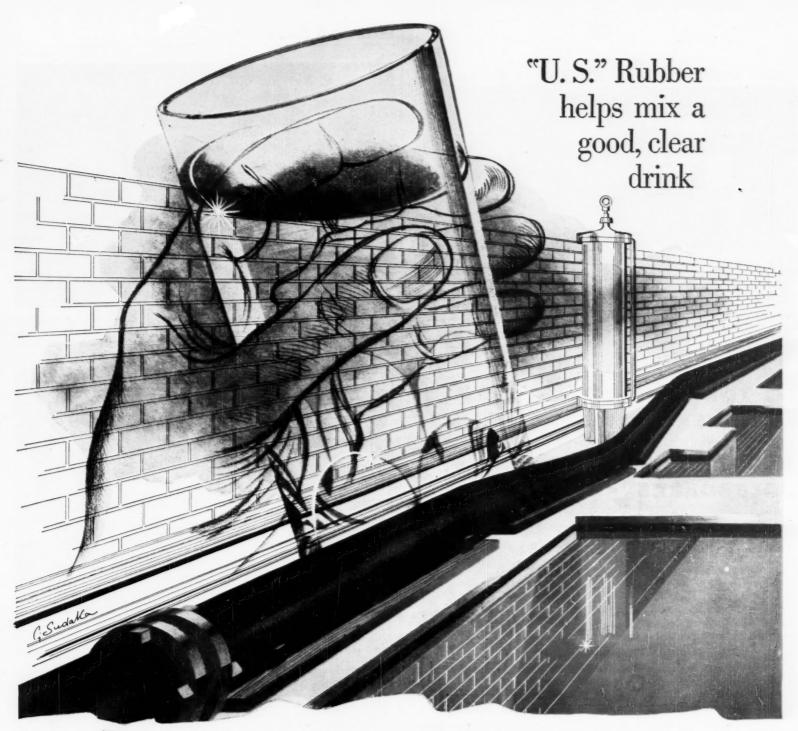
MILWAUKEE \* ST. LOUIS \* LOS ANGELES \* SAN FRANCISCO \* SPOKANE \* SEATTLE



To cut irregular shaped holes in side of pipe, torch is mounted on an arm that is rotated by a cam-activated linkage which guides the head along the hole's outline. Different cams handle various-sized pipes and hole contours.



This pneumatic device cleans the inside of pipe that is as long as 60 feet. Wire brushes can be adjusted to accommodate different pipe sizes. Carriagemounted motor rotates long shaft to which the brush assembly is attached.



The city of Denver is noted for the purity of its drinking water. Transported from the west slopes of the Rockies through the famous Moffat Tunnel, the water is purified in the Moffat Filter Plant of the Denver Municipal Water Works. Shown above in this filter plant is U. S. Pilot Pipe, which carries the chemicals that soften and purify the water—main-

taining what sanitary engineers call a good P.H. factor. With ordinary piping, the lime in the chemicals builds up and clogs the pipe. But because U. S. Pilot Pipe is flexible, the lime is easily broken loose by merely tapping or walking on the pipe.

United States Rubber Company specializes in products for chemical processing, and for carrying corrosive chemicals and acids. Corrosive problems of any type can be solved by such "U. S." products as pilot pipe, Uscolite® plastic pipe and fittings, tank linings and Permobond® protective rubber linings. A staff of engineers is at every one of our 25 District Sales Offices, ready to help you. Or write to address below.

"U.S." Research perfects it ... "U.S." Production builds it ... U.S. Industry depends on it.

# UNITED STATES RUBBER COMPANY MECHANICAL GOODS DIVISION · ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes
Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting



DO YOU WANT THE FULL,
MONEY-SAVING

ABOUT DOCKBOARDS ?

THIS NEW
FACTS FILE GIVES
THEM TO YOU...



The new Magcoa Facts File is full of facts you ought to have before you invest in a bridgeplate for your loading dock. Here are some of the facts you'll find in your copy—

- The actual costs of dangerous makeshift plates
- What other companies learned . . . the hard way
- Why sixty multi-plant national companies standardized on Magcoa Dockboards
- What your local Magcoa Representative knows about your dock

You'll find these facts and more in the new Magcoa Facts File. It's based on a study of what smart buyers demand (and get); gives you tips on net costs; talks in dollars and cents, specific facts . . . from your viewpoint.

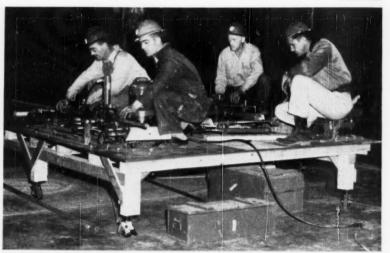
Use the handy coupon to get your free copy.

#### MAGNESIUM COMPANY OF AMERICA

MATERIALS HANDLING DIV., EAST CHICAGO 9, IND. — Representatives in Principal Cities

DIVISION OFFICES:
NEW YORK 20,
30 Rockefler Plaza
PHILADELPHIA 18,
8001 Southampton Ave,
WASHINGTON 5, D. C.
Walker Big.
HOUSTON 17,
7657 Moline St.
LOS ANGELES 34,
8922 V. 25th St.
SAN FRANCISCO 4,
Russ Bidg.
Russ Bidg.

Please send me the free new Dockboard Facts File	9
Name & Title	
Company	
Address	
City-Zone-State	



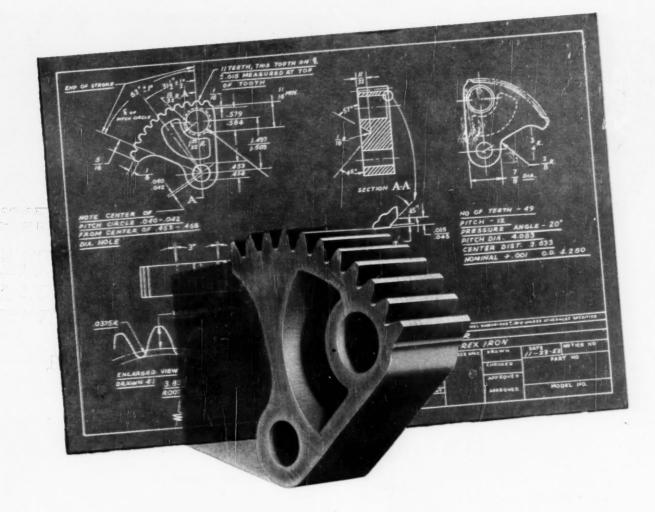
Portable work shops like this one are extremely convenient, especially in large buildings. The shop goes to the work. Six feet wide by twelve long, each one is designed so that two may be put together to form larger shop.



The pattern layout room, above, is carefully located near sheet-metal detailer (left) in order to guarantee the efficient transfer of design information. Here men mark, cut, and bend lines on tough pattern material.



Using this straddle truck, designed originally to handle lumber, for moving large quantities of fairly small structural steel sections eliminates labor, cranes, other equipment typical of more conventional handling.



#### COMPLEX PARTS ARE A CINCH FOR MORAINE POWDER METALLURGY

By conventional casting and machining methods, this part would be high in cost and would require extensive equipment investment. Through the use of metal powder techniques, it has been massproduced with important over-all savings.

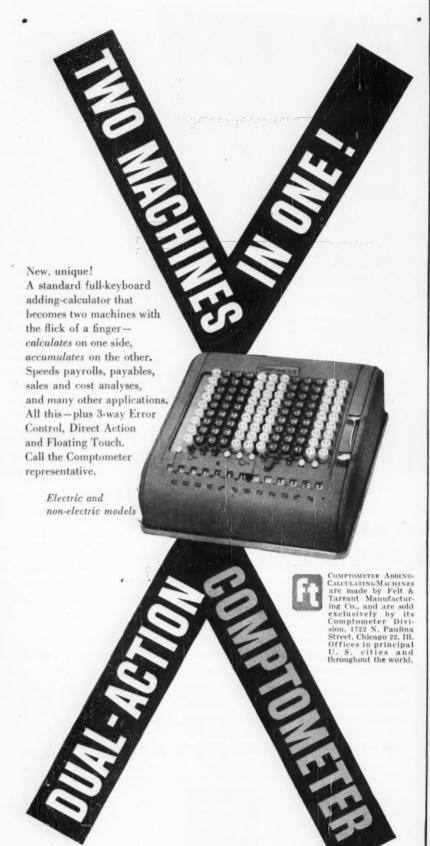
Note the construction details on the print in the background. Formerly many machining processes were necessary before this part was ready to be assembled into a complete, operating mechanism. Now it comes from a press complete in a single operation . . . another example of what can be accomplished through cooperative effort between customer and Moraine.

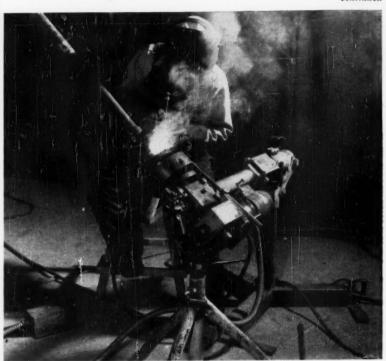
Moraine's experience with metal powder is contributing widely to modern industry. Many complex designs are resolved into practical, economical production jobs that improve performance and lower costs.



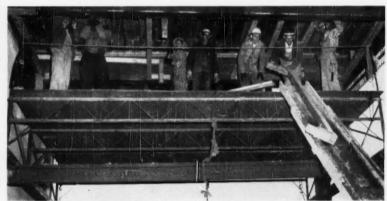
moraine products
DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, ONEO

METAL POWDER PARTS





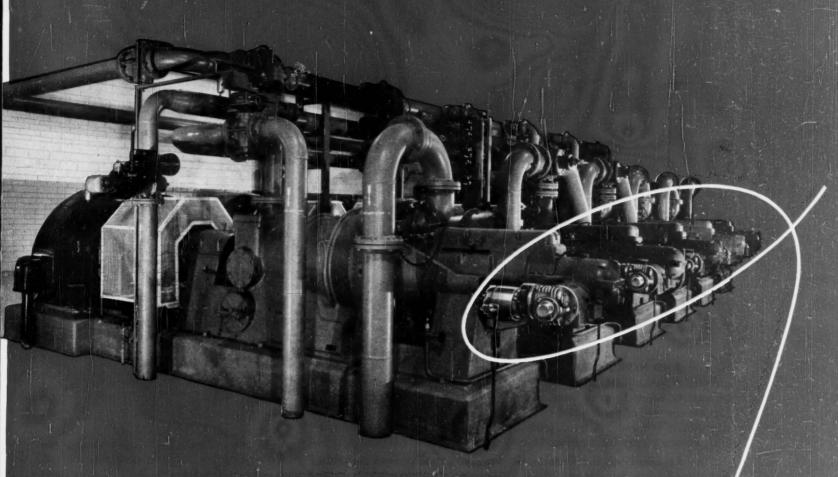
For positioning and rotating small items of work that are hand welded, this device is a convenient one. It's an inexpensive one, too. The motor and drive came from an abandoned machine; has a foot-controlled switch.



A rolling scaffold enables workmen to remove metal forms from the bottom of large concrete floor slabs. It proves much more economical than using fixed, truck-mounted scaffolds that tie up both trucks and truck drivers.



Conduit bending is speeded up with this automatic angle indicator which is attached to the pipe by a magnet or a clamp. The unit is part of a table mounted on wheels and equipped with power-driven hydraulic benders.



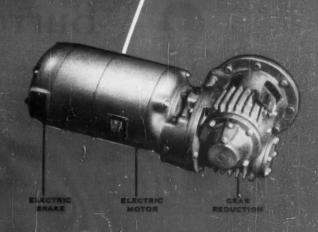
When you must have slow speed power, always consider first MASTER Right Angle Shaft Gearmotors. They're very compact . . . low in cost . . . safe . . . and so easy to use.

And nowhere else can you get anywhere near the wide range of selection that you have in MASTER Right Angle Gearmotors. They're available in sizes 1/8 to 25 Horsepower for all electrical specifications and in splash-proof, enclosed or explosion-proof construction. Gear reduction ranges up to 430 to 1 with the countershaft in either horizontal or vertical positions. In addition these gearmotors can be supplied with integrally built electric brakes . . . three types of variable speed units . . . and with fluid drive units for cushioned power.

Try them . . . you'll find they're the horsesense way to get slow-speed horsepower.

THE MASTER ELECTRIC COMPANY
DAYTON 1, OHIO

you can't beat them for compact slo-speed power



# Vail down your costs

for just \$17.41\* a month

AND HERE'S HOW—You can't escape costs... but with a Burroughs Sensimatic, at a cost to you of only \$17.41\* a month, you can control them to your best advantage. For example, it gives you positive control of your vital cost records—tells you job by job how your money is spent... what part is for labor... what part for materials... what part for overhead.

In addition, the Sensimatic gives you mechanized control of virtually all accounting jobs...does not become obsolete with changes of system or personnel...is the closest thing to profit insurance you can buy. Only through this kind of exact accounting records, showing where every penny goes, can you fully protect your business.

Find out how simply you can apply a Burroughs Sensimatic to your particular business. It quickly pays for itself. You will find the nearest Burroughs office listed in the yellow pages of your telephone book...so call right now. Burroughs Corporation, Detroit 32, Michigan.

\*Arrived at by standard procedure of tax depreciation.

#### ONE SENSIMATIC

handles all these jobs COST RECORDS • INVENTORY RECORDS

ACCOUNTS RECEIVABLE • ACCOUNTS PAYABLE

GOVERNMENTAL REPORTS • PAYROLL

# Burroughs Sensimatic

Accounting Machines

Wherever There's Business There's





NATIONAL AIRPORT, WASHINGTON D.C.-MONKMEYER PHOTOGRAPH

# The Better to Serve Small Business

WENDELL B. BARNES

Acting Administrator, Small Business Administration

As a PIONEER in the techniques of assisting small business firms the Small Business Administration finds that its policies and programs are constantly evolving.

Since my appointment as Acting Administrator many of our programs, which were in a formative state, have been firmed up and clarified.

Our loan policy is one which needed clarification, especially, since it was subject to public misinterpretation as limiting loans to manufacturers engaged in military or defense production. That, of course, was never true, either from the standpoint of the Small Business Act of 1953 or the Loan Policy Statement of September 16, 1953.

Thus, the Loan policy Board, in its statement of November 16, has made it clear beyond mistake that any small business, with a very few stated exceptions, is eligible to apply to SBA for a business loan, provided the business has a good management record and is able to give reasonable assurance of repayment.

In other words, the Government is granting no preference as between types of American small business in applying for financial assistance. All can expect to have their applications considered by SBA on an equal basis, whether they are manufacturing, wholesaling, retailing, or service organizations.

In approving loan applications these are the common sense criteria—although not technical ones—which we go by at SBA:

- 1. The applicant must be of good character.
- 2. There must be evidence the applicant has the ability to operate his business successfully.
- 3. On a term loan—one payable in installments over a period of several years—the past record and future prospects of the business must

In its efforts to serve small business, the Small Business Administration is constantly adapting its policy to meet the changing needs. These statements bring up-to-date the more detailed discussion that appeared in the December issue.

show sufficient probable income so it can be logically assumed the applicant will be able to repay the loan out of future income from the business.

- 4. The applicant must have enough capital in the business so that with loan assistance from SBA it will be possible to operate on a sound financial basis.
- 5. As required by the Small Business Act of 1953, the loan shall be of such sound value or so secured as reasonably to assure repayment.
- 6. The loan should aid the defense program or be necessary to maintain a well balanced national economy.

There are a few applicants who are specifically excluded in the Loan Policy Statement from receiving loans, such as those whose income is derived largely from the sale of alcoholic beverages or from gambling.

The clarification makes no change whatever in the security requirements of loans granted. Any loan which SBA makes, either directly or in participation with a bank, must be of such sound value or so secured as reasonably to assure repayment. There is, in truth and in fact, no element of a "give-away" or a "bail-out" in any of our loans. The "three C's" known to every banker—"Character, Capacity, and Collateral"—must be present in all of them, in some degree.

One of the things which should be primarily stressed is that the Small Business Administration has no intention of—and will even bend

over backward to avoid—competing with the private financing institutions of the country. It wants to co-operate with them and is in no sense their rival.

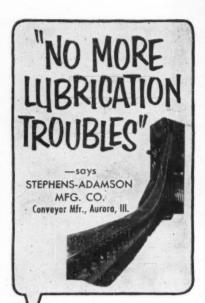
The fact that we are by law prohibited from making a direct loan until the prospective borrower has shown that he cannot get credit at a reasonable rate through a bank or other lending institution, should demonstrate this fact amply. But even that is not all of the story.

Additionally, SBA makes the condition, before it will make a direct loan to an applicant, that the applicant show he cannot get a participation bank loan in conjunction with SBÂ.

There are two kinds of participations—deferred and immediate. In a deferred participation loan, the bank provides the entire loan amount, but has an agreement with us for the Small Business Administration to purchase its part of the loan, on demand, at any time. In an immediate participation loan, SBA agrees to take a portion of the loan from the start and supplies its share of the fund immediately. In both cases, the limit of the SBA participation is 90 per cent.

As between the two types of participation, the law requires that SBA not engage in an immediate participation where a deferred participation is available.

Thus, it is possible to construct a sort of descending order of preference in the matter of loans to small business, so far as this agency is concerned. First and foremost, SBA hopes



LUBRIPLATE Lubricants satisfy the 'one-shot' requirements of our conveyor idlers. LUBRIPLATE effecour conveyor idlers. LUBRIPLATE effectively lubricates each bearing in turn and flows through the hollow shaft to the next bearing. We do not know of a single case of bearing trouble through faulty lubrication where LUBRIPLATE has been used."

#### **REGARDLESS OF THE SIZE AND** TYPE OF YOUR MACHINERY. LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose...
LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel



For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"...a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



that all credit needs will be taken care of by the banks or other private lending agencies. Second, if an applicant cannot be accommodated by these, then consideration of a deferred participation-by SBA in conjunction with the bank-is in order. If that fails, then an immediate participation can be considered. Last of all, every one of the above attempts failing, the applicant can come to SBA alone for the credit.

From this it should seem conclusive that SBA is not seeking to make loans on its own or, in any sense, to compete with the banks.

SBA is now engaged in making the banks of the country acquainted with our program. The numbers of inquiries and of applications coming in show that small businesses and lending institutions are becoming increasingly aware of the opportunities offered by the Bank-SBA Participation Plan.

In the course of its evolving, SBA has placed a different emphasis on some of its programs as to time-preference. For example, a

learned would save him \$10,000 this

This project is in addition to our regular program of trying to increase the technical and managerial "know-how" in small business, by writing pamphlets on at least 60 subjects of general business interest and sending out thousands of copies a month; by holding clinics with business men on their troubles; and by having our field representatives counsel with those who are in trouble, trying to arrive at the sources of their difficulties and directing them to qualified people who can provide proper advice.

We in SBA feel that the increase in business and technical "knowhow" is highly important, especially in view of the Dun & Bradstreet report that lack of experiencewhich comprises lack of "knowhow"-accounted for 39.8 per cent of business failures this past year.

In the field of helping small business to procure Government contracts we are happy to say that, from August 1 to November 30, awards to small businesses as a re-



Big and small business men ride "The Senator" to Washington, full of hope.

very large part of the effort of this agency was formerly directed toward helping so-called development credit corporations to get started in other places besides the New England states, where they had their inception. That program is still going forward as a longrange matter, in the attempt to help industries in a state to help themselves through their own local financing. But the greater timepreference is now given to the Loan Participation Plan.

Another medium-to-long-range project which we are undertaking is to work with collegiate schools of business to organize and promote extension courses on managerial subjects, expressly designed for the men who own or guide small concerns. A "student" in a class already formed has told us that just one method which he

sult of SBA action, amounted to \$6,421,426. Earmarked for small business, through joint determination by our people sitting with procurement officers of the Department of Defense, are contracts for \$75,488,706 during the same period.

This agency now has an agreement with General Services Administration to channel to small businesses as large a part of their purchases as possible. The General Services Administration last year made purchases of roughly half a billion dollars, on which American business had a chance to bid.

We can conservatively say, four and one-half months after SBA became an independent agency, that we have our agency staffed, our policies firmed up, and our organization rolling to render increased aid to small business.

THE END

# For Faster, Easier PALLET MOVING

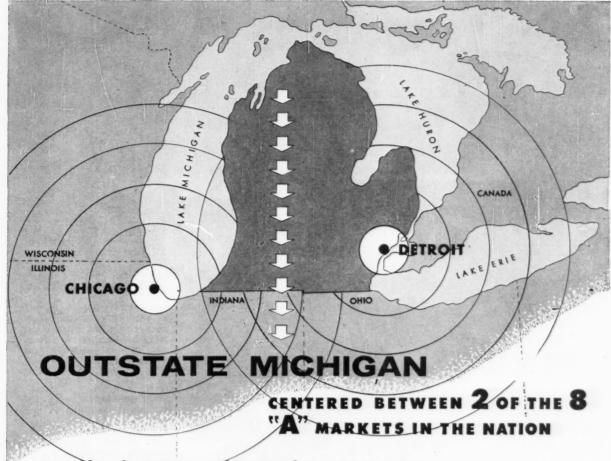


You'll speed up and simplify pallet-moving of materials — with the "Weld-Bilt" Pallet Truck! It's built to handle a greater variety of single or double-faced pallets easily and from Facility and from Pallets and from Facility an lets easier and faster. Easier on truckers,

Check the design and construction of the "Weld-Bilt" and you'll know why. The sturdy forks, with their greased-for-life ball bearing wheels are easier to handle and position under loads of 2,000, 4,000 lbs. and 6,000 lbs. Other features include: Multi-stroke hydraulic lift, accelerator type lowering pedal, "anti-kick-back" safety handle, front wheel equalizer, ball bearing wheels, and many others built for longer service, easier operation,



303 Water Street, West Bend, Wis.



#### It affords YOU unlimited opportunity for YOUR NEW PLANT LOCATION

Outstate Michigan lies between Detroit and Chicago, two of the eight "A" markets of the United States. (An "A" market is a city which, with its suburbs, contains more than 2,000,000 people.)

In a five-state area centering around Chicago and Detroit live more than 20% of the nation's people.

More than 22% of the retail sales of the United States are made in these five states.\*

So situated, and with the greatest fresh water supply in the world, Outstate Michigan is Production Land . . . Market Land . . . and Vacation Land, all in one.

And it has the know-how and the skilled labor to meet your specific manufacturing needs.

BEFORE YOU DECIDE ON ANY LOCATION ... GET THE FACTS ABOUT OUTSTATE MICHIGAN

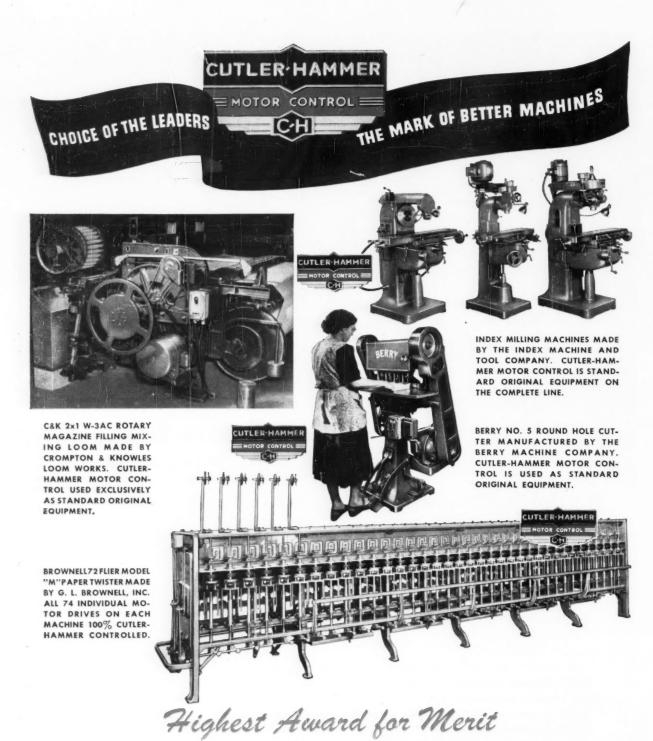
Write for FREE DATA covering specific locations



\*This area covers Michigan, Indiana, Illinois, Ohio and Wisconsin. It doesn't include the vast Canadian market that lies directly to the east of Michigan. Statistics from "Population and Its Distribution," published by J. Walter Thompson Company.

FOR INFORMATION CONTACT INDUSTRIAL DEVELOPMENT DEPT. CONSUMERS POWER COMPANY

JACKSON, MICHIGAN



Leadership is never gained by standing still. The companies that have won widest approval of the market for their products gain such recognition by a policy of ceaseless product improvement and jealous concern for every detail that influences product performance. Such consistent and widespread approval is the highest award for merit the market can bestow and is accorded products that demonstrate their superiority under direct competitive compar-

ison. This coveted seal of approval has long been awarded Cutler-Hammer Motor Control by the nation's leading machinery manufacturers who so frequently and continuously make Cutler-Hammer Motor Control their outstanding choice. You too will find it pays to specify these products of the nation's pioneering motor control manufacturer. CUTLER-HAMMER, Inc., 1436 St. Paul Ave., Milwaukee 1, Wis. Associate: Canadian Cutler-Hammer, Ltd., Toronto, Ont.

NOW You Can See Where You Can't Look

5 YEARS of continuous operation PROVE Dependability of DIAMOND "UTILISCOPE"

(WIRED TELEVISION)



"UTILISCOPE" camera at drum elevation SEES actual boiler water level.

In 1948, Tidd Plant of Ohio Power Company (subsidiary of The American Gas & Electric Company) installed a Diamond "Utiliscope" so that the operator at the control panel could SEE the boiler water gauge several floors above. The camera location (adjacent to the big boiler drum) is hot and dusty. Auxiliary machinery causes vibration. The installation (including the original camera tube) has been in continuous use . . . 24 hours a day . . . 7 days a week for over 5 years, with very little maintenance. This is the first system of industrial television purchased in the U.S. and is still in continuous operation.

Probably there are places in your plant where you can use the DEPENDABLE "Utiliscope" (wired television) ... the great new industrial aid. It is saving money and improving, operations in steel mills, power plants, foundries, coal mines, and a wide variety of manufacturing plants. Use the coupon below.



LANCASTER, OHIO

OFFICES IN 39 PRINCIPAL CITIES

CE 1903, DIAMOND HAS MANUFACTURED QUALITY EQUIPMENT FOR INDUSTRY



DEVANEY PHOTOGRAPH

# Letters

#### TO THE EDITOR

CARRY ME BACK

Webster Groves, Mo.

Dear Sir:

You really make your Business Quiz difficult (pages 76-77), as the answers are on page 262 but your October issue has only 258 pages. Through logical deduction though (I tried pages 162, 226, 126, and finally 252), I uncovered the answers, but disagree on answer 7. Isn't the Pentagon actually in Virginia? When the District was originally set up Virginia contributed part of it, but later it was returned to the "Old Dominion." Perhaps the New Deal took it back but I missed the transaction. Certainly enjoy your larger format.

Charles L. Maxey

Not wishing to infer that the New Deal walked off with part of Virginia, or anything else, we ask permission to retract.—Ed.

#### SPLITTING STABILIZERS

St. Louis, Mo.

Dear Sir:

Paul Wooton, in "Heard in Washington" for November, says: "Victory in the economic campaign ahead depends more on mass morale than on built-in stabilizers."

May I suggest that victory in the economic (and political and idealogical) campaign ahead—in short and long-run terms—"depends" on a synthesis of "mass morale and built-in stabilizers" that is the universal problem.

The quintessence of cultural evolution as well as biologic evolution is to improve "built-in stabilizers." "Mass morale" is one factor of the progressive improvement of "built-in stabilizers." However, it is not based on a unified theory of evolution. . . .

For the first time in history, the trends of all basic factors of civilization enable and may challenge man to pioneer a conceptual-allied synthesis of "mass morale and built-in stabilizers." . . .

Philip Weiss

We placed this in the "how's that again?" folder.—Ed.

#### MAN WANTED

Englewood, N. J.

Dear Sir:

Just a brief observation on the doodled organization for the modern corporate structure on page 72 of your October issue. The outfit, without a controller, is headed for perdition. I'm applying for the post right now. . . .

George Brenn Editor

The Foreman's Digest
We lifted the Vice-President
Treasurer's box and found one.—Ed.

#### OVERSEAS EDITION

Coral Gables, Fla.

Dear Sir:

... One of our affiliated companies has reprinted a number of the "executive methods" articles which appeared in *Modern Indus*try during the past several years. Could we distribute them to our



# In 1 minute

The Verifax copying method, Kodak's sensational new discovery for today's busy offices, gives you—

# 3 copies

of any letter or other office record —legible, dry, photo-exact—and made...

# on ordinary paper

instead of on specially treated paper. These 3 copies are produced from a *single* sheet of Verifax Matrix Paper for—

# only 4¢ apiece

... which is real copying economy!

The surprisingly low-priced Kodak Verifax Printer, \$240, is the only equipment needed. It will quickly pay for itself by eliminating costly retyping, proofreading... and enabling you to dispatch legible black-on-white copies immediately. No skill required ... no fussing—anyone can learn to make Verifax copies in a minute or two ... and no adjustment in your present room lighting is necessary.

Verifax copying saves wherever there's paper work

\_\_\_ MAIL COUPON TODAY\_\_

Eastman Kodak Company Industrial Photographic Div. Rochester 4, N. Y.

Gentlemen: Please send free Verifax folder and names of near-by dealers.

Name		-
Company		
Address		
City	State	
Price quoted i change withou	subject to Kodo	ak



## Sylvania offers you

# Longer Lasting Brightness!

Sylvania Fluorescent Lamps contain STABILIZED PHOSPHORS... an exclusive coating achievement enabling the lamps to provide a longer-lasting brightness now than they ever did before. This actually amounts to a "Bonus of Light" worth more than the cost of the Try 24 Sylvania Fluorescent Lamps lamps themselves. That's why only Sylvania of any popular type. If, in your alonger time than any others and maintain color and brightness can cover its lamps with this money back guarantee. and maintain color and brigamess of a longer time than any other brand, with water signal. Let us tell you more about send them back with your signed this latest Sylvania engisena mem nack with your signed erificate of Assurance and your neering advancement. For the complete story write Sylvania, money will be refunded. Dept. 4L-2301 or call your Sylvania representative. LIGHTING

Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y. In Canada: Sylvania Electric (Canada) Ltd., University Tower Bldg., St. Catherine Street, Montreal, P. Q.

people also?

Inasmuch as all our operations are in Peru, Colombia, and Venezuela, would you have any objection if we translated some of the articles into Spanish? Many of our people do not speak English, and there is a dearth of management literature in Spanish. . . .

Don Henry
Organization Director
International Petroleum Co. Ltd.

#### TOOLING UP

Houston, Tex.

Dear Sir:

Please send one copy of a reprint of your very excellent article entitled "Modern Tools for Better Management" that appeared in the October 1953 issue. . . .

Both *Dun's Review* and *Modern Industry* were excellent in themselves and quite contrary to my fear, the combination seems to have distilled out the best in both. . . .

M. C. Forbes President Aquatrol, Inc.

#### SONIC STORY

Westgate, England

Dear Sir:

I number myself amongst the fortunate in obtaining a copy of Dun's REVIEW AND MODERN INDUSTRY each month.

. . . My company manufactures the Rapisonic homogenizer which is recognized as being in the vanguard of the application of ultrasonics to industry. . . .

As a piece of industrial processing equipment, it is the first application of ultrasonics. The mechanical method of generating the sound energy is used and it is possible to process 250 gallons of emulsion for a matter of a few cents worth of electrical energy, which is only a fraction of the cost required for processing the amount electronically generated by ultrasonics; even if it were practicable. . . .

We have a particular interest in the American market and have a subsidiary, American Ultrasonics Company, who demonstrate and market the Rapisonic. . . .

In my anxiety to bring our product to your notice, I forgot to congratulate you on the way in which you conceived your article and your excellent layout. I know from experience this is a difficult subject to write about, especially when one's





IN PITTSBURGH, PENNSYLVANIA...

B. C. Gooding, Boston Woven Hose

& Rubber Co. of Pittsburgh



IN TULSA, OKLAHOMA... Leo C. King, The Happy Company



IN EASTON, PENNSYLVANIA...
W. A. Tydeman, Jr.,
W. A. Tydeman & Son, Inc.

- \* B. C. Gooding, Boston Woven Hose & Rubber Co. of Pittsburgh, 125 Fort Pitt Boulevard (Phone Atlantic 1-8313), has supplied mining, steel, and allied "Coal Belt" industries with Boston products for 18 years. An experienced sales force assists at all times.
- Leo C. King, The Happy Company, P. O. Drawer 770 (Phone Tulsa 2-2191), supplies oil fields of the South and Mid-West with rubber products. The company pioneered endless rubber belts for oil well pumping drives, has grown with industry.
- \* W. A. Tydeman, Jr., W. A. Tydeman & Son, Inc., 129 Ferry Street (Phone 7281), has served industry in Western New Jersey and Lehigh Valley section of Pa. for over 50 years. Offers a complete line of quality Boston rubber products.

See the Boston Man in your area. Check your Classified Directory or write Boston Woven Hose & Rubber Co.





The mammoth belt pictured above stood too high on its freight car to pass through many of the railroad tunnels and underpasses en route to its West Virginia destination. Boston Men rolled up their sleeves... teamed up with railroad freight traffic experts...pored over maps and timetables. As a result, the giant was rerouted many miles, but it wasn't late for its installation.

Good service is a Boston product. Fast delivery can mean savings in money and man-hours to a customer. For that reason, Boston offers direct, immediate service from warehouses located strategically throughout the country.

Tailoring industrial rubber products to specific uses...the above-pictured belt, for example...is a specialty of Boston Men. Boston experts visit customers' plants and mines...talk to the men who use industrial rubber...study plant processes and working conditions. Back in Boston's Research and Development labs, they find the answers.

Do you need an answer to an industrial rubber problem? See our distributor in your area. He is your "Boston Man."

BOSTON



BOSTON WOVEN HOSE & RUBBER CO., Box 1071, Boston 3,

Industrial Hose • Belting • V-Belts • Packing • Tubing • Garden Hose • Tape • Matting



cost is the practice of counting or imprinting paper items by hand. Few firms compute the salary hours spent on such work, or realize the substantial savings possible with the Tickometer.

Manual counting and imprinting are no longer necessary-thanks to the remarkable, electrically operated Tickometer.

This modern office machine automatically counts coupons, cards, transfers, sales slips, labels, tabs, tickets, at from 500 to 1,000 pieces per minute! It feeds and stacks automatically, stops for damaged or irregular items, records part and whole runs.

In many firms the Tickometer is used to "rubber stamp," imprint, date or cancel-as it counts. Makers of food and drug products code their package labels with it, to prevent imitations, identify origins, inspectors, factory lots -easily, quickly, cheaply.

Easy to use, the Tickometer does not demand trained operators. Rented, rather than sold, it pays for itself promptly.

Want something counted? Call the nearest PB office for demonstration, or send for free illustrated booklet and case histories.





Tickometer to count anything that needs to be counted . speeds up to 1000 a minute



Hundreds of firms use the Tickometer to code and date product labels, coupons, etc., -and save printing costs as well as time.



Counting, Imprinting Machine

Made by the originators of the postage meter ... offices in 93 cities in U. S. and Canada.

Send Tickometer booklet	
☐ Send case studies	
Name	

readership must of necessity include a lot of non-technical people.

Another thing I like about the way you dealt with the subject was that the theme of the article was machines which are actually being applied and used in industry at the present time. One of my pet aversions is that so much has been written about ultrasonics from an academic point of view with a great amount of talk on possible industrial uses which are entirely speculative.

> E. C. Cottell Managing Director Ultrasonics, Ltd.

ALOHA

Honolulu, T. H.

Dear Sir:

We appreciate . . . a review of one of our new films, "The Hawaiian Story."

The information contained in the review is factual and well done. We are pleased that you saw fit to use this item as we are mindful of the top-level circulation which your publication has. I, personally, have been a subscriber to Modern Industry for some time; however, with the acquisition by Dun, I find a fine publication has become even better. We now circulate an office copy to our department heads. . . .

Roy I. Leffingwell Director of Public Relations Hawaiian Sugar Planters Assn.

#### TUMBLER TROUBLE

Garden City, N. Y.

Dear Sir:

How far "off base" can you get? After reading the article entitled "What'll she have?" (November, page 130) I think you should make one of your famous surveys, but only among women.

So yellow is not usually considered a "children's shade." Whose conclusion is this? . . . Any mother of to-day knows that next to the traditional pink or blue, yellow and mint green are high favorites as children's shades. Tell me, please, what relationship does a baby blanket, sweater set, dress, suit, or rattle OR tumbler have to the trend of yellow in kitchens?

Before . . . giving any more premiums for babies' use where colors are involved they should send one of their staff members (a woman preferably) to shop in the children's section of the nearest department



SPOT CARB is applied directly to back of each sheet in any size shape. Clean, non-smudge. Eliminates necessity of carbon interleaving. Possibilities of simplification and savings are practically unlimited. Perfect for all forms - from small receipts to large accounting forms - single or multiple sets. Our complete plant handles printing, spot carbonizing, binding. Contact us direct for details, or call your regular supplier. Ask for free SPOT CARB samples and booklet SPO "How to save with SPOT CARB.'

<u>POT CARBON PRODUCT</u> 60 LAFAYETTE STREET, NEW YORK 13, N



#### NEATER — BETTER AT LESS COST

with HANSEN one TACKER

FASTER! Zip-zip! Fast as you grip. Tacks screens on TV-radios—plastic dial plates—gimp bindings on chairs, etc. etc.

BETTER! Balanced design-positive action—single-leg or double-leg tack-points—neater, better, precision tacking and fastening.

LESS COST! No waste! Tackpoints come in economical strips. A big saving in labor costs over old-fashioned tack



#### HANSEN VEST-KIT-AS NEAR AS VEST POCKET

New convenience, portability and speed combined with economy with Hansen VEST KIT. Modern way to carry handy supply of staples, 3/16" and 1/4" lengths.

36 Models



REQUEST

store or even just visit a few local "kiddie" stores. Bet you a baby tumbler, they'll never offer a "ruby or amber" colored article as a premium again.

Marie J. Barry Oxford Filing Supply Co., Inc.

Maybe if the baby could speak, she would pick a ruby one.—Ed.

#### **EMOTIONS**

Wilmington, Del.

Dear Sir:

We are writing you for your permission to reprint an article called "Your Emotions—Using Them at Work" which appeared in Dun's REVIEW AND MODERN INDUSTRY for August 1953.

We have a service prepared by the Industrial Relations Division of our company for the benefit of supervisors and plant managers, containing articles written by our company's department heads, and from time to time reprints or condensations of articles found in books and magazines which are of interest to our supervisory staff. This service is designed to acquaint our supervisors with matters of company policy and new developments outside of the company. . . .

George McMasters

Training and Research Section Atlas Powder Co.

#### PHOTO PRAISE

Spokane, Wash.

Dear Sir:

We have been subscribers to and have received regularly Dun's Review and Modern Industry ever since we commenced business, seven years ago. . . .

In my opinion, it is the most beautifully gotten up magazine of its kind in existence. My chief pleasure in life has been reading. For 45 years, I have led a strenuous life in business, and I am a lover of beauty in any form. I have no knowledge of photography or any skill in it, but I look through every issue from cover to cover and I particularly enjoy the marvelous photography which you reproduce in this magazine. There are magazines devoted to photographic art which seldom show such beautiful photographs as you do. . . .

R. L. Northup

President

Spokane Hardware Supply, Inc.



#### beginning next month in

# DUN'S REVIEW and Modern Industry

an important series by Peter F. Drucker on

# THE PRACTICE OF MANAGEMENT

You know, of course, where to turn for information on plant management, sales management, personnel management and financial management. But have you ever seen an authoritative guide to business management?

This series of half a dozen articles fills the gap. It is written by Peter F. Drucker, consultant on managerial organization to some of America's largest corporations, and author of *The End of Economic Man*, *The Future of Industrial Man*, *Concept of the Corporation*, and *The New Society*.

Mr. Drucker looks at the whole rather than the parts, at business performance and results rather than at steps that lead there, at all major aspects of management rather than at one specialty. He writes from the viewpoint of the executive responsible for the *success* of a business enterprise.

Depending on your vantage point, in the past few years you may have observed tremendous advances in management's knowledge, its tools, its experience, its ability to manage. But advances have been spotty. This series makes it possible for the average company and its management to reach the level of performance now attained by the leaders.

It is a practical series that does not deal with techniques but with basic concepts, policies, and decisions management must make to turn in a maximum profit.

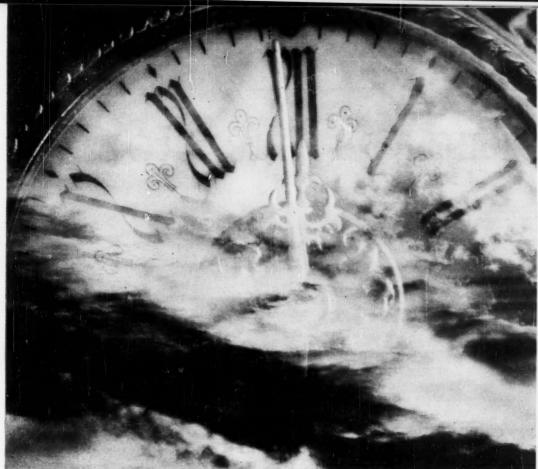
In broad strokes, it begins with the functions of management, continues with the problems of managing a business, moves into the managing of management, and the management of worker and work. The last major section discusses what it takes to be a manager.

We think management men will hail this series.

But the only way you can be sure of getting the full series is by subscription. If you do not now have a personal subscription or if your subscription is about to expire mail your order at once before February sells out! Only \$5 a year in U.S.A.

DUN'S REVIEW and Modern Industry
99 Church Street, New York 8, N. Y.





DEVANEY PROTOCEARS

IN considering the future, business men must have definite objectives and a means of attaining them. There are many factors that influence the success or failure of a company. To find out what they are and how they may best be met is a task of the present—with zero hour always at hand.

# For Operation Success

CLINTON F. ROBINSON

President, The Carborundum Company

CONTINUED FROM COVER I

The nation's economy has emerged from a significant transition whereby it is no longer possible to secure success with relative ease. Pressures within the industrial complex itself, as manifested by factors such as increased costs of operation and sterner competition, are continually mounting. Local and national political influences are no longer remote and cannot be dismissed in the course of an evening's debate among friends. Foreign affairs are at best uncertain, and the multitude of problems inherent in them have a decided effect upon the well-being of any business.

Those widely divergent considerations are among those that comprise a set of "guiding stars" under which the average business thrives or not, as the case may be. These influences must be added together for composite analysis to get to the basic task of any sizable commercial organization—that is survival followed by progress and increased profitability.

All of this is easily said, but it is obvious that the melt to be worked upon is a potpourri of such complexity as to astound even the better astrologists.

It is a certainty that the problem has been viewed from just about every conceivable angle. Many tangible approaches to the question have

undoubtedly been taken or are in various stages of application. Unfortunately, note must also be made of the considerable body of firms that do not consider attempts at planning, particularly long range, of any import.

To determine the most meaningful method of attacking the task of comprehensive planning is undoubtedly controversial. There is, however, an initial conclusion that may be drawn that should engender very little debate. That is, the subject is not only susceptible of division into two parts, but must be so treated.

The first part or phase is the broad and relatively unchanging determination of the primary

Continued on page 128

# THEY LOOKED AT THEIR PROBLEMS...



MANAGEMENT.



PRODUCTION AND SALES .



HUMAN RELATIONS .

# AND LICKED THEM

MARGARET L. JONES Executive Methods Editor

DURING PART OF World War II, a man by the name of Morton Wolovsky worked in one of the large airplane manufacturing plants, and observed the application of mass-production methods. Having absorbed much of production scheduling and control, sub- and main-assembly lines, and after a stint in the Army, he went back to his home town, Wilkes Barre, Pa., and the Pioneer Manufacturing Company—producers of children's dresses.

What followed at Pioneer is a success story that proves how faint-hearted is the business man who thinks his company too small, his staff too inexperienced, his bank account too thin, or his product not the type for him to adapt the techniques that "those big fellows" are lucky enough to have.

In 1945, Wolovsky became president of Pioneer and reorganized the company so he could put into practise the theories of scientific management. Al Landsman, vice-president Sales, and William Katz, treasurer, supplied the marketing and forecasting skills that made it possible to put his production ideas into operation.

The first experiment with mass-production was tried on a group of high-styled boy's shorts, using a simple assembly set-up. The output of each operator jumped from fifteen dozen to 60 dozen weekly. That result was enough to make everyone want to convert the whole plant, and

to impress local bankers into financing a program for expansion.

To-day, in an industry where skilled operators produce ten to twelve dozen garments weekly, at Pioneer a less experienced worker can make 20 to 25 dozen a week. Since 1946, the company has expanded sales volume tenfold and employment eight times.

#### No Bed of Roses

The environment out of which this success sprang is a tough one. The industry is composed of small manufacturers; many companies often owning only their styles, or garment designs, which are made up through the facilities of small contracting shops. The industry, historically, is one of centralized control; no one delegates authority; no one makes decisions except the boss. Consequently, a pool of trained supervisors and executives from which to draw is unheard of. And outside of certain standard items (men's shirts and work clothes, for instance), mass production is understood only slightly.

Generally speaking, the raising of standards has, so far, been left up to the International Ladies Garment Workers Union. With competitive advantages coming through non-union work rapidly disappearing, good management becomes even more important than ever.

It shows up at Pioneer in any number of ways. Take the complete integration of sales and production operations: Through a careful forecasting of styles and materials, and advance buying of cloth, Pioneer has been able to establish production schedules that give it tremendous competitive advantages.

Such integration also provides the time necessary to "engineer" each style properly and iron out difficulties in advance of production. And perhaps even more important, it permits management to keep the plant operating continuously.

The advantages here, in an industry where seasonal layoffs are common, are obvious; resulting in higher morale and take-home pay; lower turnover. At the same time that workers' basewage rates not only meet union standards but annual take-home pay also substantially exceeds any paid elsewhere for similar work, Pioneer can claim that its position in the industry is the one of "lowest cost producer of children's dresses in the country."

The fact that its product was not similar to airplanes, cars, or refrigerators, did not make Pioneer shy away from the principles of a pilot plant. The Process Department makes samples for the styles salesmen to show to customers. It also serves as a pilot plant in which to experiment with the various ways a new style can be made.

After the Production Committee makes its

recommendations on processing and work flow, every new operation is pretested in this "pilot plant" so as to work out the bugs without interfering with regular plant work.

Pretesting, preplanning, careful forecasting and buying, assembly-line techniques, production and sales integration, scientific scheduling, a split-average, wage-rate system that is an incentive to workers, and flexible to administer—all of these excellent management methods could be found at work in Pioneer's operations.

Yet something was still wrong. The trouble arose from situations that exist in any business where rapid growth out-paces management staffing and skills. It was typical trouble, and some managements would leave it at that.

Only at Pioneer—since this is a success story—the trouble wasn't allowed to boil and bubble. What had happened, was this:

The many sound operating techniques that management introduced, being foreign to the industry and never adequately explained to the employees, aroused suspicion. Management, moreover, had not always enlisted suggestions from every level, as it engaged itself in the intensive preplanning of every operation.

Preoccupied so with its approach, management unconsciously gave the impression of "we'll do the thinking, you do the work." Consequently, when up popped those little things that do go wrong, regardless of how well-conceived the action, nobody tried very hard to correct them.

Management thereupon increasingly pressured employees to "do the work right." Everything had been planned for. The fault must be somewhere other than in the management group. A fever of buck-passing and indecision took hold of everybody. Who wanted to be caught making a mistake? Over supervisory responsibility, and lines of authority a fog of confusion settled.

The Personnel Department, with its elaborate charts, committees, and policy books, should have been of some help in detecting the roots of the trouble. But charts and rules aren't enough.

With the help of an outside management consultant, Pioneer turned its attention to establishing a group-training program for supervisors and top brass; to individual counselling of all managers (from the president down); to creating information channels up and down; and to the hiring of a competent personnel director.

As diligently as he had studied aircraft production, Wolovsky began to analyze how and why his own behavior affected subordinates; and what he could do to be a more effective leader. Through individual non-directive counselling and coaching, the rest of top management took a new look at themselves, too.

#### One Communication Hurdle

As a result, communication between the members of management improved. A rapid thinker, with great ability to visualize and anticipate technical difficulties, Wolovsky often issued instructions that were so telegraphic and elliptical that other wouldn't understand what to do.

But who, anywhere, has the nerve to say, "I don't think I've got it all, boss?" (Irving Lee, noted author, lecturer, and observer of management communications explains how the "boss" can give a man more nerve to utter this simple

question, in the article, "A New Science of Thinking," Dun's REVIEW AND MODERN INDUSTRY, December 1953, page 43).

In Pioneer's case, the management group had been denying itself, for fear of asking questions or appearing stupid in front of the "boss," a good deal of technical know-how that could have been picked up through a few direct questions.

But individual coaching on human behavior began to clear up this communication problem on the management level. And Wolovsky was ready one day, when, after a conference with two members of his team, one decided to beard him. He didn't understand, he told Wolovsky. "OK," said the president, "what else do you want to know?" As a result, the proposition under consideration took better shape for everyone.

Communication improved on other levels as well. Poor connections generally develop through things more serious than the absence of a good plant newspaper or because of an overactive grapevine. At Pioneer, the uncovering of problems like the following did much to establish good information channels:

Too few supervisors and executives had enough knowledge of operations other than their own. Solution to this problem was a bi-weekly Production Clinic in which every department head discussed his own specialty in detail. Opening gong was sounded by Wolovsky himself who discussed sales, financial, and marketing details. A by-product of the clinic: all production and engineering personnel are trained in sewing machine operation and simple maintenance.

No channels through which information could come to management from workers. Under the

MortonWolovsky: from airplanes to tot's dresses.

## A president thinks out loud

I work with a top-management team of men whose ages run from 28 to 40 years. Their technical knowledge is of secondary importance. More important is how strong is their sense of reality; how deep is their knowledge of what they are here for.

They are running Pioneer in order to provide those things a worker needs to get his job done; and to remove each stumbling block that lies in his way. For when you give an employee neat work to do, he will produce neat work.

They are here to provide a climate in which a subordinate can think out loud without risking his neck. And they are on the team to pitch in and work actively as well as sit back and plan; otherwise they would be planning in a vacuum.

When I give a suggestion, I want a subordinate to forget that the "boss" made it; and, out of common courtesy, if nothing else, tell me what he thinks of it. For once he accepts my suggestion, he loses his option to ignore it or change it.

If he says "OK" (and nothing more), I expect him to follow the suggestion exactly as I gave it. As I have explained to the team, unless a fellow tells me what *he* wants, or what is wrong, or what he doesn't understand, I have no way of knowing those things I have a right to know.

We've also been trying to train into our men the viewpoint that management is a profession. Part of this training involves pointing out how many "problems" can be settled without going further up, or down, the line—that within a group considerable opportunity exists to solve a situation through co-operation.

Take the lift truck that was the subject of a running quarrel between our plant-maintenance man and the piece-goods supervisor. One complained about the truck's inefficiency (always breaking down); the other claimed that it was constantly misused. Over a year's time, this molehill became a mountain, until, one day, it was cut back to proper size by a simple act:

The two men were dared into getting together and examining the situation first-hand. They worked out a materials-handling and battery-charging schedule that jibed. Result: Cheerfulness; and a truck that handles twice as much goods now, with only a third as much use.

new personnel director's guidance, a Labor-Management Committee was formed. A Credit Union is now operating at Pioneer as one result of this action.

Employees questioned piece rates, and did not understand time-study methods. Unit supervisors and their workers were given the proper explanations in classes conducted by the engineering staff and the personnel director.

Although company piece-rate schedules are explained at the time of hiring, now a follow-up interview system for new employees takes care of any questions that come up during the confusing period right after employment.

Especially revealing was the uncovering of the root of a dissatisfied feeling with Pioneer's piece rates which were considered even by the union's time-study people as fair.

The cause, investigation disclosed, was social; not economic. In most garment plants, the supervisor throws a bundle of work at an operator, looks at the clock, and tells her to begin.

A little later, he bids her stop, glances at the clock again, does a bit of mental arithmetic, and announces her rate. She protests, they haggle a while, finally settle on a rate agreeable to both.

At Pioneer, however, the operator is given time to build up skill at the new task (earnings are guaranteed by a split-average arrangement based on previous task rate). When she is ready to be timed, the supervisor calls over a time-study man. He clocks her performance, leaves, and later her boss tells her the rate.

## Some management details that put Pioneer up front in the industry

These ideas aren't brand new or extraordinary. But they reflect a vital, often overlooked, element of success: Top-brass care of little as well as big things.

## PRODUCTION THAT HELPS SUPERVISION

Big and little production ideas are used to simplify the work of supervising. During a Production Clinic, for instance, members were asked to make sales forecasts on every dress in the line. Had manufacturing been geared to the best forecasts, a 30 per cent loss of gross sales would have resulted! Now, production doesn't grumble about sales being unable to make up its mind. Another idea: Standard job tickets besides giving usual production sequence, give data that helps the payroll clerk at day's end; the supervisor in his planning; the worker in computing earnings without having to wait to be told.

#### HARMONY BECAUSE OF DEEDS, NOT WORDS

Housecleaning and improvements started at Pioneer where they should in any company-at the top. Management called in a management consultant who spent several hours weekly with the president, and the top six executives counselling them individually on how and why their behavior affects subordinates. Two months later, the training of supervisors reporting to these men was started. By actions like this one, and those pictured here, workers saw that management was doing (not talking) everything possible to keep them regularly, and happily, employed-even to putting itself under a microscope.



Preplanning meetings tear models apart, forestall kinks.

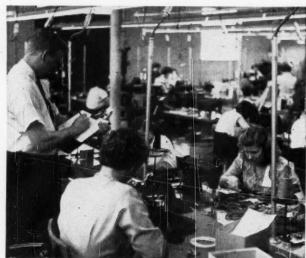
No aids were skipped: training films, clinic, cafeteria.



STYLE	FORECAST	SALAS AS	SALES	YALES YA SEASON	TOTAL SALES	VARIANE	MONEY
1601	1,200	-	383	764	1,551	351	\$ 7.020.
1402	1,500	75	624	6.74	173	627	12,540
1603	1 50	4/	352	769	1,211	361	7,230
1404	900	59	496	4124	1,439	539	10,780
1605	2,550	129	4541	2,648	3,7/4	6164	23,280
1606	915	-	124	398	450	525	10,500
1607	-	-				-	-
1608	-	-				-	-
1618	-	.56		-		+	-
611	-	3.0				1	17
un			_			OTO	AX III
			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1	3657 EC 3657 TP 1104 A 6 23657 TP 1104 A 6	34 . XX ft wat lace a st ruff sand ress bias co	u to L

Unusual use of sales forecast and job tickets pays off.

Seasonal layoffs were wiped out by scientific managing.



This system completely skips the old-fashioned haggling step. Such an opportunity to "beat the boss," and enjoy a bit of talk was greatly missed by the operators. Largely of Slavic and Italian extraction, bargaining, to them, is a form of social intercourse.

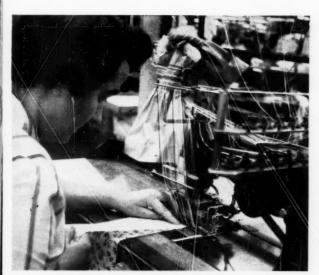
Not wishing to fall back on the "old ways," Pioneer encouraged supervisors to discuss the new work, rather than the rates, with the workers, asking them for suggestions and opinions about it. The substitute proved satisfactory.

In group-training meetings at Pioneer, canned material and hypothetical case studies were not dished out to the supervisors. In every meeting, an actual work problem suggested by the members themselves was discussed, and a solution for it sought. Benefits were immediate because reality was behind each problem; and the solution produced improvement in the work, or in working relationships. The principles of good management were not studied from a checklist. Instead, they became apparent during the dis-

cussions and took on a live quality.

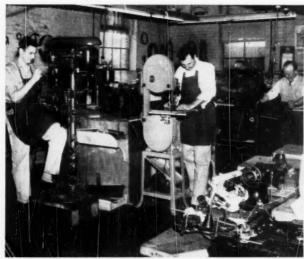
That is Pioneer's story: Expansion of sales volume, personnel, and physical equipment. A fiveyear contract with ILGWU; and no grievances for over a year. A team of executives and supervisors now so self-reliant, the president is able to leave plant operations to them so that he can provide even better sales-production integration.

The moral: There is no business so different: so small; so poor-or so strong-to which good executive methods cannot be applied beneficially.



Smocking work—not done by most dress manufacturers.

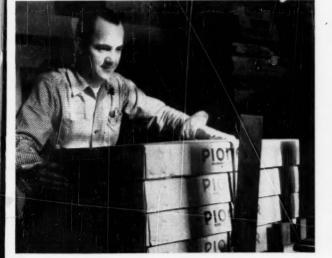
Boxes hold presorted colors, sizes of one dress style.



Machine shop keeps "special" jobs inside the plant.



→ Dresses in one box only are counted. Weighing does rest.



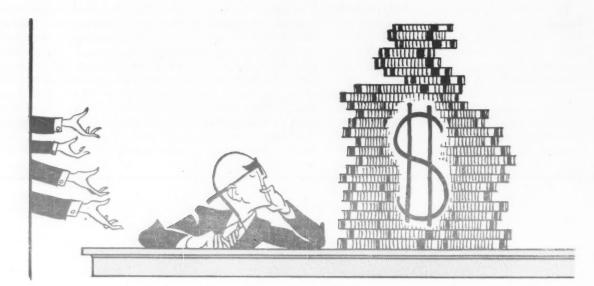
TIGHT CONTROL OF ALL OPERATIONS

"Models" at Pioneer change four times a year on 400 items. A single garment can require 120 production operations alone. Since a dress retailing for \$1.98 nets Pioneer approximately 1 cent per operation, there is little room for waste. Whether because, or in spite, of this, President Wolovsky is sure that any plant runs better if management controls every factor possible. A complete machine shop designs ma- : chine modifications that help production carry out this principle. "Maybe," says Wolovsky, "on a unit-cost basis, expense appears higher; but the resulting flow makes over-all cost picture better."

#### PREPACKAGING MAKES IT EASIER

Prepackaging before orders are received helps to eliminate undesirable seasonal-activity peaks. Customers must place orders according to predetermined assortments, thus making it possible for Pioneer to prepack standard dozen boxes. Boxes are then pulled from stock as ordered; contrary to the industry's general practise of packing dresses when orders arrive.

Prepacking also speeds production. For example, no dress lot goes into production until trimmings, buttons, and so on, are cut, checked, packaged to accompany each lot. Workers needn't stop to hunt for, or keep track of, such components.



... one of management's most perplexing problems is capital investment ...

# On getting the most from CAPITAL EXPENDITURES

RALPH E. CROSS

Executive Vice-President, The Cross Company

Even the most carefully prepared plans for replacing equipment can fail to provide full benefits if the timing is not just right. New equipment, installed too soon, can deprive a company of the final full measure of usefulness of the replaced equipment. If installed too late, there is a period when obsolescent or worn out equipment raises costs beyond reason. There is a best time to make capital investment, and there is a way to discover that time.

ONE OF management's most perplexing problems is capital investment. Executives everywhere wish that they had sure-fire answers to many questions to guide them in making decisions.

Should hundreds of thousands—or even millions—of dollars be authorized for capital investments?

Is investment necessary? Will it pay off?

When is it time to modernize? When should equipment be replaced? What should it be replaced with?

Are all the facts available?

All these questions and more keep executives in a constant turmoil, making decisions which may mean the difference between corporate success and failure and the difference between prosperity and depression for some 60 million employed Americans.

With such high stakes, there is little room for error. Yet, the human element with all of its shortcomings is more predominant here than in any other business activity. There is too much guess-work in determining the right time for replacement. Little has been done to supply the executive with scientific data to guide him in judging the value and timeliness of capital expenditures.

For this reason, the problem is sometimes sidestepped. But a "do-nothing" decision is hardly the answer. Business must go forward or die of obsolescence. That means new capital expenditures for new products, new tools and new machinery.

The importance of good timing is graphically illustrated in the chart (see page 41) which indicates reasonable, though not factual, losses resulting from premature replacement on the one hand, and delayed action on the other. Curve A plots the profits of a manufacturing process from the year of installation to the time when it is no longer profitable. The decline is the result of obsolescence. Line B plots the profits per unit that might be derived from installing the most up-to-date process available at the beginning of each year. The increase in profits is the result of

technological progress.

It should be remembered that Process B must absorb the loss if the equipment in Process A is sold for less than book value. This has a tendency to hold down the profits for B in early years while such a loss is being absorbed. Lost profits resulting from premature or delayed replacement are represented by the difference between A and B. The best year for replacement is the year in which the two lines cross.

Every business—large or small—needs sound and realistic policies and procedures to assist its management in getting the most out of capital expenditures. To put modernization and replacement on a businesslike basis, a company must first, establish a replacement policy and, second, develop a procedure to analyze modernization plans.

Policy, of course, will vary with different companies, depending on requirements. Nevertheless, every company's policy should include at least a statement of the intent to replace or modernize capital equipment as rapidly as it is economically practical, and a statement of intent to review all capital equipment for replacement or modernization at regular intervals.

Establishing a procedure is more complicated than setting policy, but it need not be difficult. The underlying principle is the selection of one method, machine, or process that will produce

and



... the underlying principle is the selection of one method, machine, or process that will produce the largest profit . . .

the largest profit. This in turn leads to the lowest cost to the consumer consistent with a fair return for labor and the investor.

The choice of the best process is accomplished by comparing the merits of several proposed plans of operation over a one-year period. Each proposed plan must take into account all factors of the company's profit, including sales income, material, labor, factory expenses, administrative expenses, interest, and income taxes. One of the simplest procedures, and one readily understood, is the Projected Profit and Loss Statement shown in the table.

Plan 1 is an old process that has been in operation for many years and is fully depreciated. To meet the production schedule, it must operate on a three-shift basis.

Plan 2 is a proposed process comprising a minimum number of highly mechanized automatic machines. It requires the least amount of labor and the highest capital investment. It meets

PROJE	CTED	PRO	FIT	AND	LOSS	STA	TEMEN	T	FOR
THREE	PLAN	SOF	PR	ODU	CING	OIL.	<b>PUMP</b>	BC	DIES

Production-	-1,2	50,0	000	pieces	per	year
Estimated						

TAILURGUE ARAUT	PLAN 1	PLAN 2	PLAN 3
INVESTMENT REQUIRED	None	1,071,000	850,000
Sales			
1,250,000 Bodies			
@ 0.82 each	1,025,000	1,025,000	1,025,000
Cost of Sales	206 000	306 000	207.000
Material	396,000	396,000	396,000
Subcontracting	None	None	None
Direct Labor	187,268	53,328	79,592
Rework	1,500	495	825
Setup & Tool	~	2 (20	5 120
Change	7,434	3,638	5,139
Supervision	20,250	7,000	7,000
Labor Fringes	43,290	12,892	18,511
Floor Space	4,435	5,443	4,760
Power	3,475	6,000	5,100
Taxes	5,000	21,420	17,000
Insurance	1,791	3,750	2,975
Perishable Tools	27,050	18,750	20,100
Supplies	9,200	3,720	3,820
Scrap	26,060	13,480	18,300
Tool Grinding	13,320	7,750	9,630
Machine Repair	15,500	5,100	3,750
Lubrication	3,550	1,250	2,500
Depreciation	None	93,713	74,375
Miscellaneous	28,090	7,999	11,938
	793,213	661,728	681,315
Gross Profit	231,787	363,270	343,685
Selling Expense	66,625	66,625	66,625
Administrative			
Expense	43,627	36,395	37,472
Interest	None	None	None
Profit Before Tax	121,535	260,252	239,588
Estimate for Federal			
Income Tax	60,767	130,126	119,794
Net Profit	60,768	130,126	119,794

the production schedule by working two shifts.

Plan 3 is a proposed process involving a number of inexpensive, single station machines at a minimum capital investment. It requires more labor, tools, and so on, than Plan 2, but less than the older Plan 1. To meet production, it must operate on a two-shift schedule.

The comparison shows that Plan 2 is the best investment. It will earn \$69,358 more than Plan 1 in the first year of operation, after all expenses. It likewise will earn \$10,332 more than Plan 3 after all expenses. If the management decides to

invest in Plan 3 rather than Plan 2, it will lose \$10,332 in the first year and in all probability a greater amount in each succeeding year of operation. If it decides to make no investment at all and continues on with the old equipment, it will lose \$69,358 in the first year and a greater amount in each succeeding year.

With Plan 2, the company has \$93,713 available from depreciation plus \$130,126 from profit; a total of \$223,839 to repay the investment in the first year of operation. Thus, working capital may be restored in as little as 4.8 years. A short capital recovery, or payoff period is often looked upon as a very favorable sign of a good investment. This, of course, is a truism, but at the same time it signifies that someone has been asleep at the switch, and that the time for replacement is long overdue.

On the other hand, a long payoff period indicates an alert management that is investing wisely to reduce losses resulting from obsolescence and old age. The payoff period is a useful device to determine the point at which working capital may be restored, or a loan repaid, but it should never determine the most opportune time for replacement.

In other words, regardless of the length of the payoff period, it is time to make replacement when new equipment will earn more profit than old equipment after all expenses and charges.

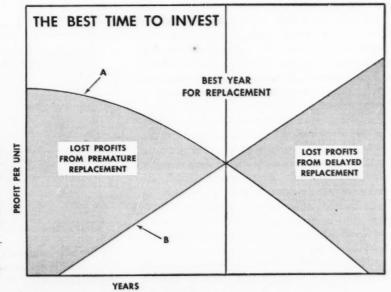
Dealing with modernization, management often sets policies and agrees on some replace-



... the analyst should never overlook the possibility for additional profit that might result from changes in design, price, quality, or quantity ...

ment formula, but forgets the one thing which is the key to the success of all replacement analyses. It is the problem of forecasting operations twelve months in advance. This phase of the work requires considerable experience, skill, and know-how. Management will be guided by recommendations, when and only when, it has faith in the figures and the personnel that puts the figures together.

It behooves the analyst, therefore, to have a supply of substantiating data. Generalizations must be avoided, and in their place details must



Good timing is a necessity when replacing worn out or obsolescentequipment. Curve A plots profits of a manufacturing process from installation to zero profits. Line B plots profits per unit that might be derived from installing up-to-date equipment at the beginning of each year. This is a reasonable illustration, though not a factual one.

be provided that can be readily understood and evaluated with a minimum amount of skill. The company's bookkeeping records will provide a wealth of historical data, and should be used to verify the estimates.

When estimating sales, it is advisable to work in co-operation with a market research specialist. In the example, the product is a rather small component of a much larger end product and, as a result, sales volume and price do not change from one plan to the next. However, the sales potential of many products vary with price and design and, under such conditions, market surveys will prove valuable in finding the right



... the estimate for depreciation must recover the investment within the estimated life of the process and must also satisfy the requirements of the Bureau of Internal Revenue . . .

combination of variables. In any event, the analyst should never overlook the possibility for additional profit that might result from changes in design, price, quality, or quantity.

In the breakdown of the cost of sales, many elements are relatively easy to estimate while others are difficult. Much of the mystery can be removed from the job by adopting procedures that reduce the work to simple terms. For example, in estimating the labor involved in a tool change, the estimator's job must be reduced to estimating the tool life and the time to change each of the individual tools. This can be simple for the production engineer to under and and evaluate. Each estimate covers only one of the machines in the process. Combine that with estimates for all machines and a sound basis is provided for selecting the number of set-up men required for the proposed plan.

Similar procedures are used to make the estimates for perishable tools and tool grinding. More information about these procedures is available from The Cross Company's pamphlet, Controlling Machine Tool Down Time.

The estimate for depreciation requires extra

careful consideration inasmuch as it must recover the investment within the estimated life of the process and, at the same time, it must satisfy the requirements of the Bureau of Internal Revenue.

The first step is to make an estimate of the expected life of the process. This should give consideration to two factors; market potential and the probability of obsolescence. It should not in any way be foreshortened by a desire for a fast recovery of capital. Such a consideration will not only distort the final result, but most certainly will be rejected by tax authorities. The next step is to make an estimate of the salvage value of the equipment at the end of the useful life of the process.

These two figures will provide the basis for computing the depreciation allowance. For example, in Plan 2, the estimated life of the process is eight years, and the estimated salvage value of the equipment is 30 per cent after eight years of operation. The depreciation allowance, therefore, is ½ of 70 per cent of the cost of the equipment. If it is felt that the depreciation allowance, arrived at in this manner, will not be acceptable to the Bureau of Internal Revenue, then the net profit should be reduced by an amount that will make up the difference.

All elements of the cost of sales that cannot be estimated individually are grouped under the heading of miscellaneous. This estimate is a percentage of direct labor based on past history. In the example, the figure is 15 per cent.

Sales expense, in many cases, will be merely a percentage of the sales dollar. This is the case in the example because design, price and quantity are all constant. However, in many instances, these factors are not constant, and as pointed out previously, they provide additional profit possibilities. For example, some savings will be found in the cost of selling when a new design or reduced price model is introduced to the market. Here again the market research specialist will be a great help to the analyst.

Administrative expense, like all other factors of the selling price, will vary from one plan to another and will offer possibilities for savings and increased profits. A plan involving a highly mechanized manufacturing operation will require less manpower in the Payroll Department and, as a result, less administrative expense.

An estimate for interest should be included only when it is necessary to borrow money to carry out the plan. Interest referred to here should not be confused with interest or return on the investment which is a part of the profit.

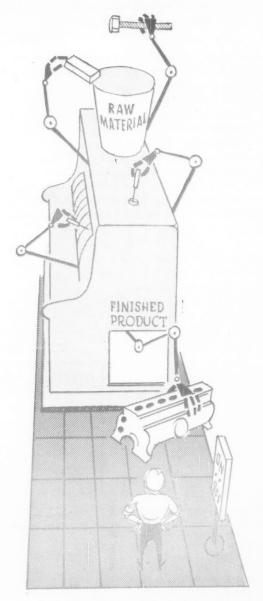
In general, estimating is an art requiring a wealth of skill and experience. Forecasting the potential profit of a complicated business operation is probably one of the highest forms of this complex art. Management will be wise to keep this in mind at all times, and particularly when it is selecting personnel to handle this part of the job.

The Projected Profit and Loss Comparison is one way, but by no means the only way, of

analyzing plans for modernization and replacement. Probably its most outstanding feature is that no expenses or charges to the operations of the proposed plans are omitted or added; it presents all the facts.

Management can quickly appraise the effect of changes in any factor, labor rates, taxes, interest rates, or other, up or down—it can place a quantitative value upon the savings of one plan over another—it can measure the benefits of progress—it can even measure the cost of delaying modernization—and it can be assured of getting the most out of its capital expenditure.

Whether or not this particular method is used, it is certain that American industry must give more attention to modernization and replacement if it is to avoid destruction by obsolescence. Every business will find it profitable to have a specific replacement policy, and a department, staff, or individual to constantly formulate and analyze modernization plans.



... a plan involving a highly mechanized manufacturing operation will require less administrative expense ...



CONGRESS, HERE LISTENING TO PRESIDENT EISENHOWER'S FIRST STATE-OF-THE-NATION ADDRESS, FACES A POLITICAL TUG-OF-WAR OVER LABOR LAWS THIS ELECTION YEAR. - UNITED PRESS PHOTO.

## T-H ACT: STRONGER, WEAKER?

For the first time since 1947, numerous amendments to the nation's basic labor law loom as a possibility in 1954. Affected employers should make their voices heard.

ALFRED G. LARKE Employer Relations Editor

WHAT TO DO about the Labor-Management Relations—or Taft-Hartley—Act promises to give Congressmen some of their most painful hours in this year's Second Session of the 83rd Congress.

Organized labor's demand for the relaxing of some of the Act's most stringent features carries more political force this year than for several years past. First, there was an acknowledgment by President Eisenhower, during his campaign for office, that some T-H provisions might be used to damage unions under adverse circumstances. He pledged, too, that his Administration would see that these sections were amended.

Second factor favoring the union drive for relaxing the law is the essentially pro-union character of the nineteen amendments proposed in a draft of a proposed Presidential message to Congress, which was "leaked" to the press last Summer.

Regardless of how authentic the "nineteen points" were as an expression of the President's position, the incomplete explanation of the draft message and the lack of an out-and-out disavowal of it, have established a new front line from which labor may do battle, well in advance of its previously defensive position.

The unions can use the nineteen points as a measure for any changes proposed or enacted this year. They will be able, in the eyes of their own members at least, to depict anything less than the points as a retreat on the part of the Administration.

The issues have been dramatized for union and general public as well by the resignation of Eisenhower's first Labor Department Secretary, union leader Martin P. Durkin, who had a leading role in the drafting of the nineteen points.

Supporters of the Taft-Hartley Act as it is, as well as those who think it should be strengthened rather than weakened, criticized the purported Presidential message sharply when its contents were disclosed.

An impression was abroad among them that the unauthorized release of the message was simply a sharp trick by union adherents, and that the nineteen suggested amendments did not actually represent Administration thinking.

As 1953 drew to a close, however, and the time grew near for the President to publicly make recommendations to Congress, many spokesmen for management became concerned

about the pressure the incident had created upon the Administration. Whether fiction or fact, last Summer's purported Presidential message has given unions new leverage, it was realized.

Even among such spokesmen, however, there was not complete agreement as to what amendments are desirable or permissible. And, when the views of Congressional leaders like Representative Samuel K. McConnell, chairman of the House Labor Committee, and Senator Irving M. Ives, acting chairman of the labor subcommittee of the Senate's Labor and Education Committee, are taken into account, the variety of advice to management is truly bewildering. Their ideas are summarized below.

While the CIO still formally urges repeal of the Taft-Hartley Act and return to the Wagner Act, the AFL, in its Fall convention, mentioned only amendment, revision, and correction, not repeal. CIO President Walter Reuther, indicated, too, that amendments would be gratefully accepted at this time.

At the CIO convention, Secretary of Labor James P. Mitchell, told delegates:

"If we can agree to start from the point of

#### Pandora Durkin's Box

#### and What It Contained

When House and Senate Labor Committees held hearings last Spring, the question at issue was whether, how much, and in what direction the Taft-Hartley Act should be amended. Point of attack and of defense was the Act as it is.

Since August 3, however, when the Wall Street Journal published a purported draft of a Presidential message recommending nineteen points of amendment, the argument has been whether and how many of the nineteen suggestions should be adopted.

Authenticity of the "leaked" Presidential message as President Eisenhower's final thought on the matter was denied. But the unions had won a big strategic gain by shifting the grounds of debate. Whether management and other advocates of no relaxation in T-H have won back the lost ground will appear in hearings in the current session of Congress-and in that body's final action.

Here are the famous "nineteen points" of the disputed Presidential draft message; as reported by the financial paper and since confirmed by some who helped on the recommendations:

- 1. That Congress remand to the states jurisdiction over small employers.
- 2. That the definition of supervisors be amended to exclude those whose supervisory duties consist only of giving directions to employees and assigning work. This would permit this type of supervisor to be included in production workers' unions.
- 3. That the T-H definition of "agency" be amended to accord with common law rules, so that unions would not be held responsible for the acts of an individual member merely by reason of his membership.

4. That a study be made of the causes of dissatisfaction with administration of the Act, with an eye to recommending improvements, especially to cut down delays.

- 5. That unions be permitted under a union shop contract to expel, and require the employer to discharge, a member for his disclosure of confidential information of the union, or for reasonable cause to believe he is a member of or in sympathetic association with the Communist
- 6. That the Act be amended to assure that an employer may notify a union of job vacancies and a union may be given an opportunity to refer qualified applicants for employment.

7. That it be made clear an employer and a union may agree on minimum training and experience requirements, or priority in opportunity of employment for experienced employees; also that, under a union-shop contract, the union be required to admit such qualified individuals into membership.

8. That employers in the construction, amusement, and marine industries, because of special employment situations, be permitted to enter "pre-hire" contracts with unions and grant union-shop provisions.

9. That the T-H ban on secondary boycotts be amended to exempt from prohibition concerted activities on a construction project, and to permit concerted activities at work which is being "farmed out" to other employers while employees who normally do it are on strike.

10. That the 60-day, "cooling-off" period required before strikes be reduced to 30 days, and that the penalty of loss of status by striking employees be eliminated.

11. That the holding of a collective bargaining representation election be barred for four months after commencement of a strike, to assure that only permanent replacements for strikers-not temporary ones-be included in the

12. That the right of employees to obtain a "deauthorization" election in a union with a union-shop authorization, during the term of a collective bargaining agreement, be eliminated.

13. That neither party to a labor agreement be required to negotiate, during its term, on any subject not covered by the agreement, unless the latter authorizes such bargaining.

14. That certain duplication of information required to be filed by unions be eliminated.

15. That the requirement union officers disclaim Communist Party membership be eliminated (other recommendations to effect the same ends are to be recommended).

16. That the general counsel of the National Labor Relations Board be given discretionary authority to seek injunctions in secondary boycotts, rather than mandatory; and that no injunction or restraining order be issued without notice and opportunity for hearing.

17. That a new general rule be established defining the dividing line between federal and state jurisdiction, in place of two existing T-H provisions, one of which makes federal rule on supervisors supreme, and the other of which makes state authority dominant in regard to union-security clauses.

18. That employee authorization of union dues check-off run until revoked, instead of until the end of the year or contract term, as now.

19. That employers be permitted to waive participation in welfare-fund administration.

realism-which is that the Taft-Hartley Act in many of its features is sound, fair, just-and preclude further talk of repeal of the Act, we will then jointly concentrate on those features of the Act which are really dangerous to labor, really loaded, really unfair. I am for the removal of these unfair features. The President is for their removal. I think a majority of the Congress will be for their removal. What those features are in precise detail must be worked out in conference and in compromise."

#### Warnings Are Sounded

Reuther told him the CIO would co-operate with him in trying to work out a program of amendments.

That was in mid-November. It was not long before this that several management spokesmen, who had previously directed most of their fire at last Summer's nineteen proposals, began to sound warnings that the Administration, bending over backward to make good on a campaign promise, might make unwise concessions to the unions. Where the cry of appeasement had previously come from union ranks, it now began to be heard from an occasional management throat.

Former Congressman Fred A. Hartley, Jr., whose name adorns the Act, was one of the first and the bluntest. He said:

"Like all thinking Americans, I am disturbed over press reports which reveal the activities now going on within the Administration on possible amendments to the Taft-Hartley Act.

"Incredible as it may seem, there are persons of influence who have fallen completely for some of the exaggerated and untrue arguments which have been howled forth by the labor bosses for six years.

"It should now be obvious to the political amateurs who have done so much damage that their poorly conceived strategy of wooing the labor bosses has come to an abortive end. . . .

"Of major concern to me, however, as the present palace guard continues its efforts to try to amend the law, is the lack of attention being given to the rights of individual working men and women as contrasted to these proposals to increase the power of the union representative and the labor boss.'

Charles M. Brooks, former associate general counsel of the National Labor Relations Board under Robert N. Denham and now on the legal staff of The Texas Company, a week later told the Texas Personnel & Management Association that "the political attitudes and partisan oratory emanating from St. Louis, Chicago, Washington, and elsewhere tend to extinguish 'the overpowering light of national interest' which guides our President."

Speaking personally, rather than as a company representative, he commented more mildly than Hartley, but to somewhat the same effect:

"President Eisenhower defended the [T-H Act | in his campaign while agreeing to support some corrective amendments. Unfortunately, some of his advisers have not given him the full story.

"In any event, I feel strongly that the law has succeeded and that any emasculating amendments would lead us back into the wilderness of demoralizing labor strife."

He winds up a detailed discussion of the nineteen points with the statement that it is "impossible" to enact a law that will be *acceptable* to both sides, urging that the best that can be won is a law that is *fair* to both sides and comes nearest to eliminating labor strife. "If our government officials try to please everyone," he says, "they will please no one."

Hartley, who denounces amateur politicians, is a professional, but not a practising one; he is a consultant. Brooks, second in command to a general counsel who was critical of past administration of the Wagner Act, is now in private industry. This should, perhaps, detract nothing from the weight attributed to their views. No exceptions can be taken to the views and position of Theodore R. Iserman, New York attorney and specialist in labor law, who spoke as an invited guest at an industrial relations conference in Philadelphia, sponsored by the Chamber of Commerce of the United States.

Iserman told the conference:
"When the Committees of Congress started hearings early last Spring, few employers had asked for time to testify. There seemed to be a disposition on the part of business either to depend on the new Administration to save most of Taft-Hartley or to go along with weakening amendments in order to avoid embarrassing the new regime. . . .

"Thanks to the warnings of the US Chamber and similar organizations, business men awoke to the danger in time. They showered the Committees with requests to testify, and produced before the Committees compelling evidence and a mass of it showing that Congress ought to strengthen the Act, not weaken it.

#### "The White House Intervened"

"It then looked as though Congress, far from emasculating Taft-Hartley, might meet a number of business' more serious criticisms of the law. Had the matter remained with Congress, that might have happened.

"But the White House intervened. . . ."

Referring to the nineteen points of the supposed Presidential message to Congress, Iserman said that, on balance, he must believe the explanations of the White House staff. But he also said:

"No one of these proposed amendments by itself would have scuttled the Taft-Hartley Act, but, taken together, they would have gone far in that direction.

"After the abortive message appeared, the White House described the paper as a 'working draft.' Its explanation was too laconic to offset seemingly well-founded reports that the message was, in fact, in substantially final form; that only Continued on page 98

## Why Some Employers

## Don't Like the Program

Criticism of the draft recommendations has not been limited to generalizations. Before a conference of the Chamber of Commerce of the United States, for instance, Theodore R. Iserman, attorney, made these points, among others:

• Management would approve federal reassurance of states' rights on such matters as regulating strikes, picketing, and lockouts, as proposed before Congressional hearings.

But last Summer's nineteen-point proposal would repeal the Taft-Hartley provision forbidding compulsory unionism, he says, and "in every state that has not yet passed a 'right-towork' law . . . would legalize the most extreme forms of compulsory unionism, closed shops and closed unions, and would give to unions strangle-holds on the economic and political lives of millions of workers."

• He warned that labor is cleverly using the states' rights slogan in an effort to return representation cases to the states. Of all provisions of the existing T-H Act, those dealing with representation are best so far as employers are concerned, he said.

Missing from state laws now, he pointed out, are provisions for employers to seek collective bargaining representative elections and decertification elections. Likewise, states do not provide for professional employees to vote in separate units, for separate units for guards, for equal rights of independent unions, for denial of votes to permanently replaced strikers, among other desirable features.

• Rather than transfer effective control over efficiency of the workforce from the employer to the union, by permitting many supervisors to be represented by the bargaining unit, the Taft-Hartley Act should be amended to remove still more employees from the bargaining unit, Iserman proposed. Among his suggestions were that time-study men, budget people, cost estimators, employment, personnel and labor relations forces be excluded.

• Permitting unions to require employers to fire employees who "disclose confidential information" of the unions or whom the unions accuse of being Communists, "would make employees still more subservient to their union bosses and would lead to grave abuses."

 Permitting hiring halls and "union dictation of employees' qualifications for jobs" would lead to something like the now banned closed shop and closed union.

Repeal of the mandatory injunction requirement in secondary boycott cases "would leave us without any effective protection against them."

Charles Brooks, a former NLRB assistant general counsel who is now in private industry, is even more specific in his attack on the nineteen points:

• Six of the nineteen items in the proposed amendments, he points out, deal with the closed shop. Point 5 (see page 44) would let a union "trump up" a charge of disclosing confidential information to get rid of any member who opposed policies of the union leaders, he says. Unions already have the right to expel individuals for Communism, he adds, although not to demand their discharge from employment.

• Points 6, 7, 8, and 12 would all weaken present anticlosed shop provisions of T-H. "While a reading of them may lead one to believe that these proposals are innocuous, one who has had experience in labor relations will readily recognize that these amendments would constitute the 'foot in the door' which would lead to many 'under-the-table' closed shop contracts, and eventually to the repeal of the present closed-shop prohibition altogether."

• Adoption of Point 17, he says, would in effect repeal the "right-to-work" laws of many states insofar as they relate to businesses falling within federal invitalities.

within federal jurisdiction.

• Repeal or "dilution" of the 60-day, coolingoff-period provision would be a step backward toward the "quickie" and "wildcat" strikes that plagued industry before T-H. The 60-day, cooling-off period, plus the threat of loss of employment status, has reduced irresponsible strike actions, according to Brooks.

• Since boycott practices are most often found in the construction industry, weakening the prohibitions against secondary boycotts in this area seriously weakens the law; "we should not violate the basic guarantee of equal justice under the law by favoring one group of unions over

• The NLRB already applies common law rules of agency in determining union responsibility for members' acts; to adopt Point 3 "could only confuse." Unions themselves, Brooks says, agree that a reputation for increasing regard for the sanctity of contracts—partly due to this portion of T-H—is a valuable asset of the labor organization.

• The present exclusion of all supervisory employees from employee bargaining units has been clear and has been helpful. Permitting some supervisors to be represented by production employees' unions would create confusion, divided supervisory loyalty and responsibility, and "years of litigation" to obtain reliable guides.

There are times when a blank piece of paper might convey as much information as a written memo. Recent developments show an increasing gap between those trained for verbal transmission and those used to pictorial reception. If management is to be understood by the workers, the stockholders, and the community, the art of written communication must be restudied and overhauled.



DEVANEY PHOTOGRAPH

## EFFECTIVE ENGLISH:

## make it work for you

#### MAURICE GRANEY

Head, Department of Industrial Management, Purdue University

THE ENGLISH language has many aspects. In school it is dealt with as literature, as a form of self-expression, as an art, and as a craft for those who wish to become skilled artisans. In industry, on practically all occasions, it is reduced to its most basic use—a means of communication. However, this is often least emphasized by those responsible for training people in the use of language.

Certainly a grave problem results from our failure to utilize our language for effective communication. While this failure may be wide-spread in our society, it is particularly noticeable in industry, as the following excerpt from a recent article points out.

"America at the mid-century should be the golden age of understanding for business. Never before has the business man had so much paraphernalia with which to communicate to those about him, and never before has he spent so much time using it. And more and more, as he looks about him, he is coming to wonder . . . Is anybody really listening?

"He gets up a report about his business and if it's simple he is accused of talking down to people; if it isn't he is accused of talking over their heads. He spends thousands to inform people that the company's profits are 7.2 per cent only to discover when his pollsters query them later that they think he made 50 per cent. He puts on a big community-relations splurge and finds that the townspeople think a lot better of a firm that didn't do anything. Whatever the



Gaining simplicity without talking down or losing your identity need not be a formidable and worrisome task, and it could increase all-round efficiency.

medium, the more he tries to communicate, the more he can conclude that management and the people it tries to reach are groups separated by the same language.

"The evidence is frighteningly strong that he is right. The employee, surveys indicate, is as misinformed about business as ever. Even the stockholder seems to have remarkably little interest in what management has to say to him; the public even less, and the government none at all. Not since the early thirties has business been so troubled by the gap between it and the rest of our society."

This rather startling statement of the magnitude of the communications problem in business and industry is a direct quotation from an article published in the September 1950 issue of *Fortune* magazine entitled, "Is Anybody Listening?"

This, of course, is a big, broad statement. On a scale which is not so grand, the breakdown in communications between supervisors and workers contributes greatly to the dilemma of industry. For example, it has been estimated that between 30 and 50 per cent of orders given to workers must be repeated because they are not understood. The cost of this failure in communi-

cations, with its resulting loss in production, cannot even be estimated. In making assignments, issuing reprimands, giving instructions, and in numerous other routine communications, industrial production slips and costs rise because understanding is not complete.

Even in an area in which industry should be at its slugging best there is still a third failurenamely, the recent and growing effort to sell free enterprise to the American people. Probably never before in history have business men been so imbued with a single purpose. They are continually exhorting each other to spread the gospel before it is too late. The article quoted earlier goes on to say "All in all, the free enterprise campaign is shaping up as one of the most intensive 'sales' jobs in the history of industry-in fact, it is fast becoming very much of an industry in itself. This year it will probably account for at least \$100 million of industry's advertising budget and an unknown but hefty share of its employee-relations expenditures." And yet even the men who plump for this great effort concede its failure.

The above situations could be elaborated almost endlessly and could be supported with vast accumulations of facts and statistics. Our job to-day, however, is not to reconstruct the problem, but to analyze it and seek its causes.

A number of able students have made studies of why communications, particularly in industry, are often futile. It has been said, for example, that we misjudge the nature of our language, assuming it to be a fundamentally rational process. Management has been accused of being insincere, or of selecting incompetent personnel to handle its program. Communication is said to be difficult if the persons involved do not have a genuine trust in and respect for each other. We assume that people learn by being talked to, forgetting that in order to have an effective exchange of ideas and feelings, we must have effective listening. These and other explanations have been advanced. Perhaps all of them bear on the problem.

In addition to these there has been advanced recently an interesting hypothesis by Professor J. J. Jehring of Cornell University. At the 1952 annual meeting of the American Society of Training Directors, he presented a paper entitled "The Training Director and the Visual Man." In this presentation he analyzed the current breakdown in communications and developed his hypothesis in the following way.

For many centuries the time span required for important changes in social institutions was considerably longer than the life of a single individual. Thus, an individual would experience only minor changes and so was trained to adapt to fixed conditions. Since the beginning of the twentieth century, however, the time span of social change is shorter than a human life. Changes occur at such a rapid rate that a person must adjust constantly to tremendous alterations

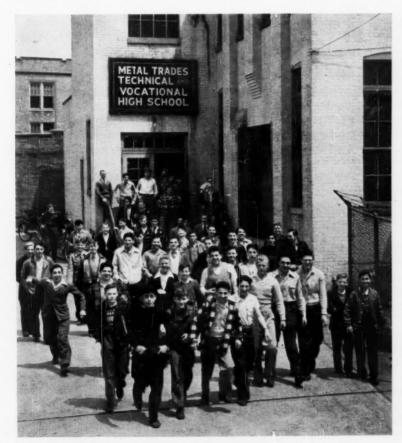
in physical environment as well as in social institutions.

One of the aspects of this rapid social change has been our system of free education for all people. This system emerged from the old classical education which laid heavy emphasis upon symbolic concepts, either mathematical or verbal. It soon became apparent, however, that many students had difficulty mastering the proper meaning and use of these symbols. If all students were expected to remain in school until age sixteen, some new type of education had to be introduced. At this point a program, broadly called vocational, was introduced.

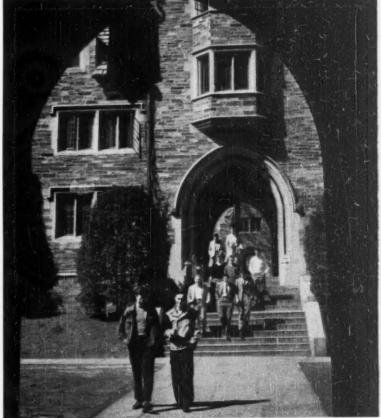
Whether a student were to follow a program which stressed the vocational or one which stressed the academic remained dependent, in part at least, upon his aptitudes and abilities. Frequently, the selection of the student's program was influenced in no small degree by his performance on a typical intelligence test. Such tests acutely focus our attention upon the individual's ability to understand and to use symbols. Presumably a student deficient in this ability would perform poorly on such a test, and conversely, one who excelled on the test would possess the ability to a high degree.

Whatever the techniques employed, the result has been and continues to be a separation into two groups: One launched upon an educational program predominantly academic, the other upon a

Continued on page 100

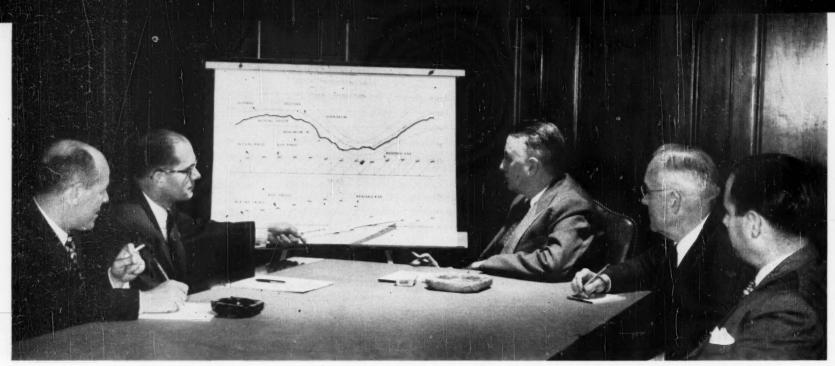


From the "learning by looking" school come the boys who will soon be men. Regardless of their capacities, they have been geared to receive information by the simplest method. It follows that the verbal man must make a new approach.



DEVANEY PHOTOGRAPH

The verbal man leaves his Alma Mater filled with a resolution to better existing conditions. He finds that he must compromise with those conditions if he wishes to communicate with most of his fellow men and speak of his theories.



Preliminary briefing before once-a-month planning session for Eastman Kodak's sales planning team relies heavily on visualized data as part of . . .

## TOP-LEVEL SALES COMMUNICATIONS

Here's how a number of companies get the facts to sales executives.

JAMES K. BLAKE Marketing Editor

A TRUISM that has come to mean more and more to sales executives is that the primary function of a report is to communicate something. A second truism that haunts the sales vice-president with an overloaded brief case is that an executive is only as good as his sources of information. To those, add a third. A man can only absorb and act upon a limited quantity of facts in a given time. Then, balance all three against the undeniable fact that effective sales management must work with more tools and more company departments (as well as outside consultants) than ever before and you end up with some of the reasons why companies are streamlining their reporting procedures. Their objective: more information in more usable form-faster!

For some general idea of the changes that are taking place and the tightening up processes that are going on, take a look at the Lukens Steel Company. Says Market Development Mgr. Faunce, "If we are to influence the flow of goods, we must know all the factors of competition, the bases of product acceptance, the channels of distribution, the alignment of promotion effort and services that accompany these services."

Commercial Research Mgr. Aires points out it's not enough to know your own costs and

methods. He explains, "By analysis of our customer's industry we can help the fabricator aim his sales activities. We can show him where his markets are going. We're spending roughly 50 per cent of our commercial research time helping customers find and develop their markets. The key to our part of the steel business is better service and this means that, somehow, we've got to put money in the customer's pocket."

For Sales Vice-President Wiese, this progressive shift in marketing approach meant a heavier stream of factual reports and a new flood of purely qualitative information that had to be evaluated and acted upon. It was apparent that some type of reporting method would have to be developed to bring the dozens of separate, though interrelated, facts together to give them perspective and focus.

The first job was to streamline the commercial research department and to open up the chain of communications so that all market facts would flow to one source. One of the first discoveries was that their fund of external marketing data was incomplete for some industries. Another was that, and this is not unusual, many facts that should have been flowing to sales management were compactly stored in the heads and files of other management personnel. And, again a typical experience, many of the management re-

positories were unaware that other executives were in need of the facts they, themselves, took for granted.

An important offshoot of this development is the recent creation of what Lukens calls its "Market Facts Board." The board is a large panel about eight by eleven feet which will hold up to 60 charts. On it, plotted for trends, is most of the operating information that sales management needs to know. The significance of the board is reflected in its heavy use by the top sales team. Actually, little information is charted that was not available somewhere in some form in the company before, but the fact that it is now collected and presented clearly in one place makes it seem, as one executive said, "as though I'm looking at different facts."

In a sense he is because the addition of visual aids here results in clearer communication of shifting, complex relationships. Backstopping the faster communication of facts to sales and other Lukens' executives is the commercial research department which schedules thirteen meetings a year to brief management and interpret trends in terms of external (national) as well as internal (company) movements.

Aside from these periodic briefings, the Market Facts Board is always available for all executives. Lukens keeps it in Market-man Faunce's

office for refresher purposes and the pipe-line to commercial research for additional views is kept open. As the significance of speed in the transmission of fact becomes more evident—as it has already in sales management's improved grasp of the total picture—new ways are being found to hurry up the evaluation of raw data. Recently, for example, most of Lukens' major customers were recoded on IBM cards in terms of their major markets, total sales, and so on. As a result, Lukens' sales management now gets a quicker, better picture of its markets and also saw a solid promotional tool in the making. Result: A quarterly letter now goes to Lukens' customers discussing market trends in the customer's industry and in the customer's markets!

#### Admiral's One-Stop Chart Room

In Chicago a similar problem resulted recently in a somewhat similar solution. The Admiral Corporation last Summer developed a centralized report room to service its sales executives (see photos, pages 152–153). Admiral's basic dilemma is typical of many firms. Every month and every week literally tens of thousands of market facts come flooding in ("Distributor A moved fourteen units of Model X during such and such period"). No executive can review and analyze them all. He'd have no time to be an executive. And if he did study them all, he'd have wasted most of his time anyway because he would not have enough time left to do anything about most of them.

Admiral's answer is a "Sales Intelligence Room" which shows carefully summarized results on wall charts arranged at eye level. They're easy to prepare and easy to read and they leave the center of the room free for action-planning conferences. They are instantly available for reference.

Consultants from McKinsey & Company recommended this approach to Admiral for a number of reasons but an example will illustrate the major ones. Suppose a distributor is doing a relatively poor job on Product Y. It may not be apparent that he needs help until his sales are compared with quota or until his performance is compared with other distributors. Moreover, his sales picture on this product may be influenced by a heavy push on another product. Multiply a large number of distributors by several facts about each product group, multiply that by several product groups and you wind up with a strong case for graphic presentation.

The rationale behind the central room is convincing, too. In the example above, the chief sales executive, the marketing research manager, and possibly people from advertising, finance, technical service, and other departments may all be involved in the final decisions. They need the same basic information and they need to work together. A central rooms meets these needs better than duplicate graphs and charts or photos.

Admiral thinks that prompt action is imperative because, in a highly competitive industry, the stakes are obvious. With a system of tabular reports (the conventional type), there would be a choice between a delayed final report and a series of incomplete interim reports. Now charts begin to change as soon as the first statistics are received and analysis and planning can start without delay.

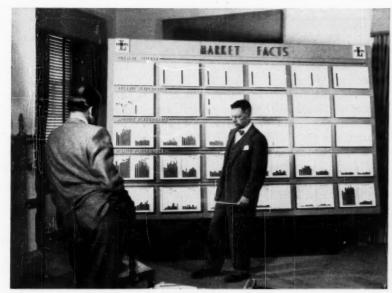
In many instances the technique of reporting is directly affected by type of organizational structure. At Du Pont, for example, an elaborate or formal method of presentation is unnecessary. Here's why: The company's production and sales are handled by ten operating departments. Each of these has a considerable amount of autonomy in manufacturing and selling its own products. For the most part, five or six men comprise the general management of a department and they work as a tight, closely knit unit. The sales director of a department is the top man in the company sales organization. There is no sales organization for the corporation as a whole.

Because of these factors, the sales director of a department does not have a direct, working interest in the operations of the rest of the company. The information that guides him in planning is right at his fingertips. For example, monthly, quarterly, and annual forecasts and actual performance. Whenever he requires information that cannot be supplied by his own staff, the executive who knows the answers is probably in the office next to his or just down the hall. These informal day-to-day conferences keep him up-to-date. Du Pont people emphasize that the written reports which the sales director sees almost daily are part of a stream that keeps running and for this reason there is no need to present full-scale periodic briefings.

#### Kodak's Seminar System

Eastman Kodak's reports to its sales staff are based on a similar philosophy. As their vice-president in charge of sales and advertising, James E. McGhee, phrases it, "What I see is a part of a steady flow." As the reports move into McGhee's office from the accounting and treasurer's office, many of them via the chief statistician's branch, any break in an orderly trend is easily spotted and the telephone usually brings the answers. Vice-President McGhee points out that he can hardly be out of touch with production and inventory developments because two or three times each day he runs into or has lunch (only once per day) with executives responsible for those areas.

Beyond the daily reports, however, EK has developed a system designed to take many of the headaches out of its sensitively seasonal business. Once each month Mr. McGhee attends a series of meetings. The purpose of these sessions is to put meat on the bones of the daily and weekly reports, through additional interpretation and group discussion, and to facilitate co-ordination of production and sales planning. Whereas the weekly reports show sales by products, branches,



Lukens' market facts board in Sales V-P Wiese's office keeps him up-todate, is available for immediate reference with members of sales team.



Monthly session for top company officers, above, uses board as tool for review of economic outlook, production, sales, and inventory trends.

## Visual aids for KEY STAFF REPORTS

Here's bow U. S. Steel

organizes to produce them



Drafting and chart work goes to large cartographic section for slide preparation. All of these sections are located in the Advertising Division.



Upcoming reports are scheduled on traffic board. Right one shows reports slated for supervision by staff of visualizers, left board shows progress.



Photographic processing, black-and-white or color, is handled on the spot by staff working with about \$40,000 worth of custom designed equipment.

and distributors in almost traditional fashion with the usual breakdowns and comparisons with past periods, the monthly seminars are patterned to help sales and production management plan for the immediate and long-range future.

The reports as presented in these meetings all originate in widely separated company departments. But, before top sales management sees them, they have been culled by Chief Statistician King's department and adapted to bring out the facts that the key men need to know. Early in the evolution of the seminars there was naturally a considerable amount of experimenting with different types of presentations. Management knew, of course, what major items should be included but it took some living with the figures before the supporting data included became standardized. And even now, the reporting departments check up periodically to see how

important sales considers the various studies that flow across their desks.

The two monthly meetings are similar in that almost identical reports are shown and discussed in each. They each rely heavily on charted presentations. Each major product is charted separately. Sales of each product show (a) previous years' sales, (b) estimated sales, and (c) actual sales. The inventory status is also charted on a normal and actual basis for the plant and the branches. The trends are interpreted by experts from the statistical, market research, financial, and production departments.

But, because each four week period's actual sales may call for a revision of estimated sales for the following period and this, in turn, will mean revision in production schedules and inventory policies, the preliminary meeting is mainly attended by the sales vice-president and his department heads, although production peo-

ple are usually there, too, in order to maintain liaison. After the presentation and analysis, the sales heads decide what changes *they* think should be made with regard to future estimates and the like, but they have no authority to order concomitant changes in production schedules.

There is normally a two or three-day interval between the two seminars—enough time to complete suggested programs and also to check up on any points or causation that weren't wholly clear at the preliminary meeting.

The second session includes v.p.'s, treasurer and plant manager as well as most of the staff present at the first, and it is here that, after reviewing the facts, decisions are made and translated into production and sales plans.

The pair of meetings together seldom last more than three hours, but those three hours provide an important link in the Eastman Kodak communication network. The net effect



Report writer discusses draft with visualizer whose job is to translate it into ideas for slides, film sequences, flip flop charts, or stick boards.



If slides require art work, expert art section after briefing by visualizer, works fast to change words into pictures, abstractions into images.



Actual projection is handled by specialists working with their own cued script. Often, as above, a number of simultaneous projections are used.



After report to top management is given, all expensive art work and slides are cataloged and stored for future possible use with other audiences.

is smooth co-ordination of the sales effort with production, financial, advertising (the sales vice-president also heads the advertising staff), research and planning.

Last month the General Sales Committee of the United States Steel Corporation met in Pittsburgh for their semi-annual review and planning session. The GSC is composed in part of sales vice-presidents of the various operating divisions. On the agenda were forecasts for 1954, sales reports, and discussions of pricing policies. Roughly two-thirds of the presentations were given with slides. One presentation lasting 50 minutes showed the activities of the export division in about 270 slides.

The expense in terms of equipment, manpower, and art work is considerable. Here's how the company justifies it. A report to management often represents months of work and thousands of dollars in salaries and travel expenditures. The aim of any report is to bring about action and decisions. When sales management presents a report to an executive committee or when important reports are prepared for the top sales staff by research departments, you want to be certain that the study is operating at peak efficiency, that you are approaching total communication. To get it, B. E. Estes, who heads U. S. Steel's commercial research department, suggests a number of leading questions:

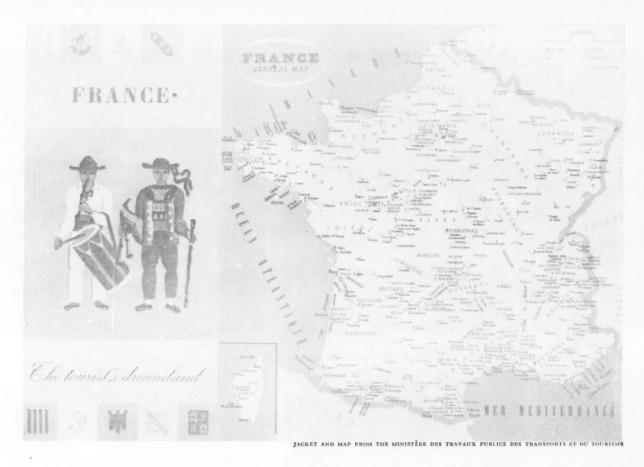
Will management fully understand what we have done? Will management be as able to understand our results as we who have worked with them day and night? Will management take the time to read, study, and digest thoroughly our necessarily technical report? Will they call us in promptly to clear up any misconceptions or questions? Will they be able to pass on the results to other key members of the executive team? Says Estes, "Let's be realistic.

Will they wade through the dull, abstruse, colorless thing at all, regardless of how earthshaking its findings may be?"

The answers to these questions are usually an absolute or slightly shaded negative. Even on key reports, the type that a top management planning committee will obviously study exhaustively, communication is limited by (a) individual reading and varying interpretations privately arrived at, and (b) the single impact of the printed page. As a result, more time is spent in executive sessions than anyone would care to admit simply thrashing out the proper interpretation.

To date, the most effective medium U. S. Steel has found is slides, and mainly colored slides, because they are both highly visible and dramatic. Slides are used for nearly all important, special reports to top sales management. Recent-

Continued on page 154



# Observations on France PART II

#### EDWIN B. GEORGE

Director of Economics Department Dun & Bradstreet, Inc.



The economic situation in France is one of the great problems of the post-war world and not simple of solution. In the first part of this article which appeared in the December 1953 issue of Dun's Review and Modern Indus-TRY, the author reviewed broadly the current situation and followed with a more detailed discussion of various aspects. He covered the gigantic growth of government expenditures, the muddled tax situation, the lack of adequate competition, and the problems of investment faced by French business.

Under the last point, Mr. George noted the predominance of small business and the need of most businesses to conserve earnings because of the lack of a capital market.

lighted in this article with a view toward discovering the roots of the problem and how to deal with them. HIS last note leads into a big footnote. Why is small business so ubiquitous and big business so sparse? Reasons have been

France is facing a critical period in her life and there is no handmade solution to her predicament. The vast complexities are high-

implicit in the foregoing account and herewith is an effort to tag some: A vast number of the small ones may not wish to get big because of the discouraging correlation between size and vulnerability to the tax collector; the growth of medium-sized concerns may be slowed down by the cumulative weight of taxes and contributions to social security; in the absence of a capital market, by remaining small they retain greater flexibility in the use of available funds; and the swarm of small companies is unduly augmented by the tendency of workers retiring at an early age on pensions to start a business.

From an economic standpoint, how useful is investment to France unless preceded by internal and external reforms that will permit its fruits to be realized?

Some of the difficulties requiring attention have now been identified. Among them are an inward withdrawal from the economic world; inadequate competition; high prices and profits; a heavy mass of small business with too few throw-offs of unusual enterprise; an inequitable tax structure unable to command the respect of taxpayers; lack of a capital market; dependence on Government rather than industry for expansion; a maldistribution of wealth and income; efforts to redistribute both through a smother of political devices in place of united effort to expand them; and economic policies sincerely

designed to protect labor from the consequences of partial economic stagnation.

This last item, particularly in its relation to new investment, may be illustrated by France's famous "social solidarity" maze. A larger portion of national income than in any other country is moved from hand to hand by the Government in response to political pressures and fears.



OPEN MARKET ALONG THE BOULEVARD SEBASTOPO

The most sensitive Frenchman would hardly take offense at the criticism that the economic effects of these swaps cannot possibly be calculated, that they are probably adverse, and that they are seldom considered at all. Numerous workers are permitted to retire at 55 largely on a combination of taxpayers' money and public deficits. Job security has become a mania. A man once hired becomes something of a ward of his employer and can rarely be fired except at great cost. Social responsibility in all industrial countries has advanced to the point of protecting workers against employer callousness and economic instability for which they are not responsible, but the arrangements in France are highly personalized and extortionate with insufficient spreading of risks on insurance principles. What was supposed to be a cushion within the limits of equity and the means of all the people has become a dead weight on individual enterprise. Even the prima facie benefits are not measurable because the heavy dependence on indirect taxes and deficits destroys all evidence of true cost to the beneficiary.

A security superstructure in a modern industrial economy is all right, but first there must be an underlying economic structure of known design and strength. That of France might have difficulty in qualifying on either of the latter counts—and the architectural positions are reversed. Investment must go forward on its theoretical merits, particularly that of increasing productivity and lowering costs, but it will have to do its work under handicaps.

Solutions: What can you do with a rich land that Providence has given in trust to a people of character and ability who have lost their sense of mission and with it self-control? France could almost save the world if she could conquer herself. Her basic difficulty was not the wars although they aggravated matters terribly. Her kind of troubles have been building for a long time.

Someone said that France has been withdrawing from the world culturally and economically

since Louis Bonaparte. As a result (if this is true) she has become more and more ingrown in what is geographically one of the world's pivotal spots.

Nor is this image inconsistent with the fact of great and continuing cultural achievement. Amidst all this economic disarray France goes on supplying leadership in the arts, popular philosophy, painting, literature, and political philosophy as distinguished from politics. The introspectiveness of many French writers explains to some analysts this seeming paradox of lambency and withdrawal. Others note psychological tension. The purpose here is merely to dispel any idea that France has also to contend with a loss of intellectual vigor.

Returning to her economic difficulties, a few generalizations are probably all that should be ventured in summary.

Fiscal: France is using her budget for everything. She is trying to redress the serious dislocations resulting from other bad policies by an enervating redistribution of each year's inadequate production through fiscal strong-arming. She taxes away (really collects) over a third of



TRAIN FROM HAVRE IN ST. LAZARE STATIO

her gross national product, takes it where she can get it (lacking the strength to execute any plan), and distributes it among squeaking wheels (most of which have no traction). Her Governments have been taking from some and giving to others for so long and so extensively as to have reduced the process by now to one of economic bulb-snatching.

Economic Structure: It features an overdevelopment of small business because of lack of ability and inducement to grow; inadequate competition among both large (collusion) and small (political protection); and low voltage dynamics generally. A Frenchman once said to this writer that the worst thing that had happened to France was that she did not lose the war. The result has been that ancient and somnolent institutions were once again spared an awakening. For the sake of the point the dreadful hyperbole may be forgiven.

Monetary: France has been plagued by inflation rather generally assumed to have been caused by World Wars I and II and the Indo-China fracas. This is true in a contributory sense, but France also suffers from inflationary domestic policies and a heritage that she can't shake off. She has for decades been trying to placate the victims of an uneconomic structure

and behavior with hand-out types of aid through means that were often inflationary.

Investment: The capital market is dead and most expansion is now financed by the Government. Private industry badly needs renovation to expand output, increase productivity, lower costs, and through these achievements to raise the domestic standard of living and recapture world markets.

Social Security and Welfare: The benefits are larger than the economic system as now functioning can afford. In some respects and places they are not greater than needed to compensate for low wage scales and high costs of living, but their distribution bears no orderly relation to needs and merits and the funds are not taken from the right sources. They are probably an impediment to growth and to progressive real gains in the living standard. Applied as they are, they squeeze the fruit of enterprise while it is still green, conferring larger shares on labor at the expense of larger ultimate yields for everybody. The flaw in this kind of analogy is that it assumes good behavior on the part of employer (competition, moderate profits, mass distribution), and of government (efficient administration, economy, resistance to pressure groups) as well, whereas France's problem is circular.

Foreign Policy: At some times, particularly in economic matters, France seems to make a minimum effort to live in and with the world. Restrictionism in foreign trade has been excessive. And she has also her high moments. She sponsored the Schuman Plan, proposed the European Defense Community even though later hamstringing it, a majority of her National Assembly recently jeopardized their political heads by voting to prolong the Indo-China suffering, and her sacrifices for defense of the West probably exceed our own. The perspective of her Governments has been clear and intelligent and their



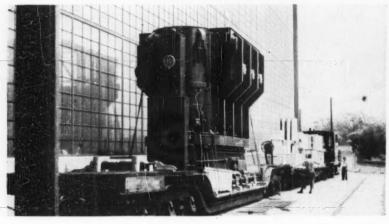
STAME DISDLAY ON A STREET NEAR THE CHAMPS BLYSE

main fault is that they have had to work from a wobbly politico-economic base.

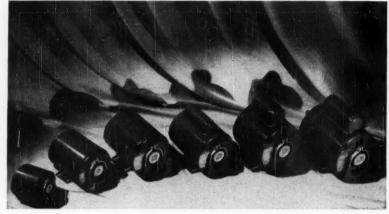
In so complex a situation the easiest conclusion is to tell her to quit doing all these things. Expressed positively this would mean to place principal reliance on open markets, force modernization of industry and higher productivity, break up industrial combines, eliminate trade restraints, reduce unit profits, admit more foreign goods as a spur to greater efficiency in do-

Continued on page 90

## No product too big-or too small



Big as it is, this GE power transformer is 70,000 pounds lighter, takes less space than units with half its capacity built a few years ago. New insulation, cooling methods; more compact design, made savings possible.



Already small, fractional horsepower motors are made even smaller by improved heat transfer, greater use of aluminum, new insulating materials. Largest of GE's new line weighs less than half as much as previous model.

## Chemical products profit this way, too

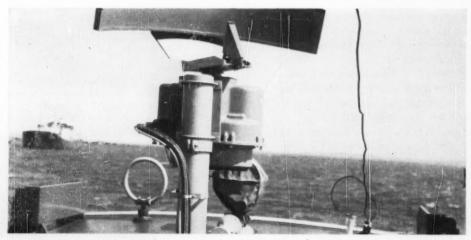


Conversion from wet to dry cuts shipping, storage, and display costs for Purex Corporation and its distributors. New chlorine dry bleach requires far less: space than liquid product (photograph at left), is said to do a



better cleaning job, and can be packed in handy dispenser-top bottle (photograph at right), so it is easier for the housewife to handle and use. Many other chemical products might benefit from a change like this.

## Sometimes it means a break with tradition



Small ship radar is made possible by brand new approach that mounts part of receiving equipment on antenna (left) instead of in indicator unit (right), eliminating need for wave guide, other special equipment. Use



of stock drive, manual tuning, also helps to cut weight and cost. Complete unit weighs less than 200 pounds, is a good deal less expensive than previous models, costs far less to install. It's Raytheon's Model 1500.

and

## HOW TO SHRINK YOUR PRODUCT

. . . to expand your sales

#### ANNESTA R. GARDNER

Industrial Editor

YOU CAN SELL more by giving your customers less-if that "less" is in the form of size and weight reduction that makes your product less expensive, easier to use, or easier to handle.

That's why a lot of companies are shrinking their products these days-and finding it pays off in new sales and more satisfied customers.

Naturally, every product can't be put on a reducing diet. A lawn-mower, for instance, needs a certain amount of weight to follow ground contours; scales have to be large enough to hold the things being weighed.

But even when over-all dimensions must be held constant, individual components can be made smaller or lighter in weight to reduce production costs and shipping costs and make it possible to pack more advantages in the same amount of space.

And this applies to products which are already quite small, as well as to those which are extremely large.

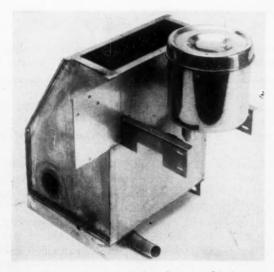
For instance, many electronic components seem tiny right now. Yet, spurred by the special



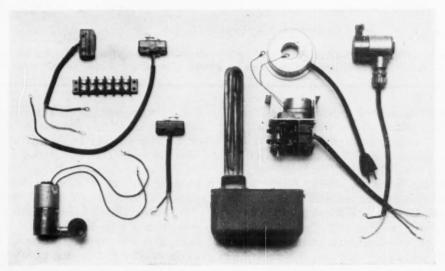
Table-top coffee-maker packs a lot of refreshment in a small space. It shows how new materials, design ideas mesh to form new product.

## Materials and design work together

C reentrated coffee in liquid form, plus new design ideas, produced this brand new product for Rudd-Melikian, Inc. Aimed at the restaurant field, the CC-5 Coffee Maker is fully automatic (just press the button at the right for coffee, the left for hot water), and takes only about one sixth the space of conventional three-bank coffee urns. As the pictures below indicate, design of the unit started with the key feature-the coffee concentrate (left). Then, mechanical, electrical, and water control components (right) were designed -and redesigned. In early models, they took almost twice the space they do now. Thermostat and water heater, originally separate, were combined into a single unit, float switch replaced large pressurereducing valve, and electrical components were mounted directly on water tank-eliminating need for an extra fuse and switch box.



Concentrate cannister is key feature of unit, was



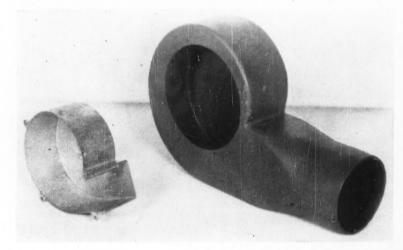
Control components were studied-and restudied-to combine, eliminate, and simstarting point for design, as this photograph shows. plify parts. Float switch is at upper left; thermostat-heater combination in center.

## This one rounds out a line . . .

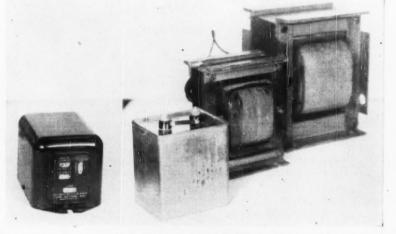


Half as tall, and nearly 300 pounds lighter in weight, new Ozalid "Bambino" (left) still handles standard-sized paper. It meets need for small, lightweight machine suitable for general office use.

Some companies must have large-sized reproduction equipment, and can keep it busy. But others hesitate to take the plunge because they aren't sure they'll like or need it. So, Ozalid Division of General Aniline & Film Corporation decided to open up this market by building a new, smaller model that could be sold at low cost. The result is the "Bambino" pictured here. Far from replacing larger models, it has actually spurred their sale by bringing in new customers who, after trying the small model found they actually had enough work to keep a larger one busy. The photographs below show some of the design changes which made the Bambino possible. Others: a new dual-purpose meter that also serves as a pump; a single heater rod that replaces two; a new mechanical drive which allows use of a smaller motor. Many of these were made possible by newly developed materials and electronic design techniques.



Many new fabricating methods were used for Bambino parts. Blower housing is die cast instead of sand cast; new unit has powdered metal sprockets.



Careful engineering is reflected in new, single-unit lamp ballast (left) which takes the place of three units at right, weighs only a tenth as much.

needs of the military forces, the electronics industry is finding ways to shrink them still further. (The progress of this industry in both miniaturization and automation will be discussed in a forthcoming issue, and are mentioned only briefly here—Ed.)

On the other hand, there are such huge items as turbine generators which occupy several thousand square feet of space. Yet, as Allis-Chalmers points out, new supercharged turbine generators, smaller and lighter than their predecessors, not only permit savings on power house floor space (which costs several thousand dollars per running foot of length), but also on foundations, cranes, and related equipment.

How, then, does one go about shrinking a

product? Obviously, it is more than just a matter of looking at the item through the wrong end of the telescope. The fact is, size and weight reduction requires careful attention to every detail of product design and, frequently, it raises problems that did not exist—or were not very serious—in standard-sized units.

For instance, heat is a major problem in miniaturization of motors, transformers, and many electrical instruments. In a small unit, it's much harder to get rid of the heat created by release of electrical or mechanical energy, and special steps must often be taken.

At General Electric, this particular problem is being attacked from three directions:

First, by using materials of construction which

are able to stand higher temperatures (higher alloy steels, for example).

Second, by taking advantage of new and better insulating materials.

Third, by rearranging product elements to provide for the most efficient dissipation of heat (putting the "hot" elements on the periphery of the unit, for instance).

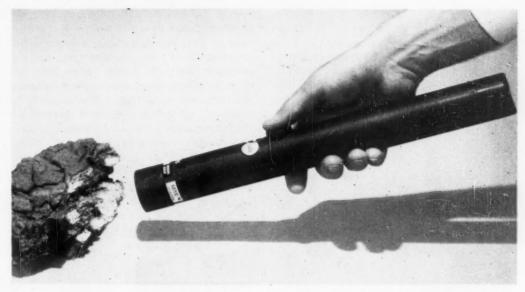
GE engineers emphasize that solving problems like this is not simply a matter of waiting for useful developments to appear. You have to go out looking for them—and then do plenty of work on them yourself.

"We are usually in a position," they say, "of taking materials developed for purposes entirely foreign to [our type of product] and working

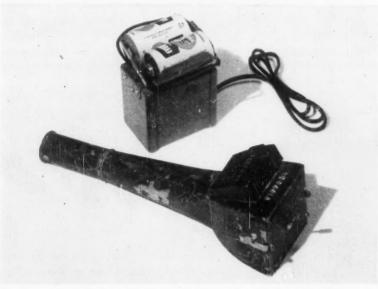
and

## Smaller-and then still smaller

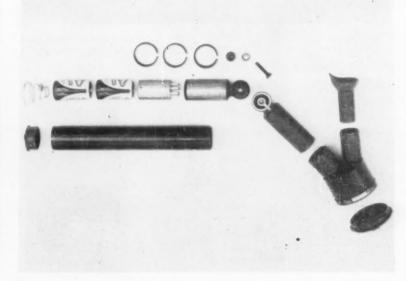
The slim and streamlined "Blacklight Wand," ultraviolet detection unit shown at right, takes a giant step up in product design, and down in size. Complete with batteries, it weighs less than two pounds. Earlier products weighed up to fifteen; and even the first Wand model (below, left) weighed four. Many problems had to be solved in designing the Wand-a new type of ultraviolet burner; cushioning materials that would resist ultraviolet light. But Charles Weeks, Director of Menlo Research Laboratory, which developed the device, feels the effort was well worth-while: The new unit, in addition to receiving wide acceptance in the prospecting field where such devices are widely used, is finding new industrial jobs in leak and flaw detection, water pollution studies, pest control.



It looks simple, but a great deal of work went into the design of this new, lightweight Black-light Wand. It's used to identify minerals, as here, may also find several industrial applications.



First model incorporated many new design ideas, but was still bulky, far from good-looking, required separate battery and transformer, extra wire.



Present design puts all parts in a single housing in the form of unicized, easy-to-replace components. Case is less than two inches in diameter.

with the manufacturer to modify chemistry, physical characteristics, and processing methods to develop a material that has real utility in our field."

This, then, is the *how* of product shrinkage. The next question is "How much?" How small can—or should—a product get?

Executives in many of the companies represented here agree that there is no final or absolute goal. One can only keep trying, they believe, and keep looking for new and better materials and production methods.

The fact is, few products are so old or so well established that further size or weight reduction—of components if not of the unit as a whole—is impossible or unnecessary.

For example, incandescent lamps are now small indeed compared to Edison's first model. Yet, just recently, Westinghouse announced still another size reduction for a standard lamp. Its new 200-watt bulb is now no bigger than the usual 150-watt light, making it possible, as Westinghouse points out, to get more light in places where the larger bulb would not fit.

The constant search of alert companies like these provides plenty of opportunities for industrial equipment and materials suppliers—opportunities that can open new markets and bring new profits.

Here, for instance, are just a few of the materials and components that would be welcomed by electrical equipment makers:

- A new and better core steel that would have greater magnetic capabilities and lower losses, but would still be reasonable in cost.
- Tough, inexpensive insulating materials that can resist moisture as well as heat.
- Lubricants that have a greater effective temperature range—and still cost no more than present-day oils and greases.
- Starting switches, relays, and capacitors that are small enough to fit into "waste" space on or inside equipment housings.

Such demands are continuing ones. They are never fully met because an improvement in one material brings a demand for a change in another which, perhaps, was entirely satisfactory before. For instance, GE engineers note that the

## Little changes add up to big savings

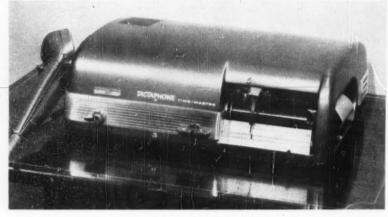
It's easy to reduce product weight or size just by dropping a few heavy components, or using nothing but thin sheet metal in construction.

Dictaphone, for instance, could slash the weight and size of its machine by eliminating the built-in speaker and changing the base-plate and other castings to stampings. But, as Dictaphone points out, eliminating good features is rarely the way to increase sales. Instead, com-

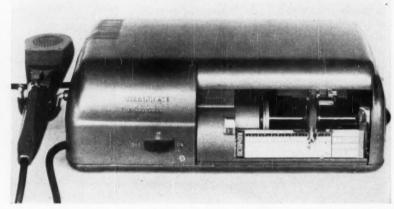
pany engineers took the harder—but better—way of fine-combing each specification to find ways to simplify and combine parts, and substitute stronger but lighter weight materials. They've gone to magnesium castings and nylon bushings, and have made a host of small, but important changes that add up to a remarkable saving of almost 50 per cent in weight, without sacrificing a single important quality. They've

even added one as a matter of fact—an automatic playback unit.

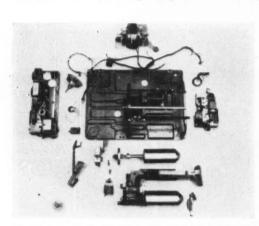
And Dictaphone engineers aren't resting on their laurels. Though they think present size and weight are just about right, they're still hard at work on individual components so that, on future models, they'll be able to offer even greater user-benefits in a unit of the same size and at the same cost.



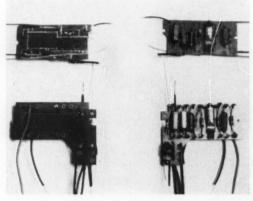
Ten pounds lighter, yet not a cent higher in cost than the original model introduced five years ago (right), new Dictaphone Time Master "5"



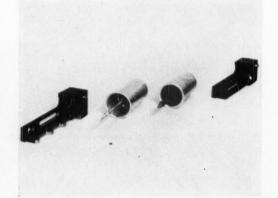
(left) incorporates a host of ideas many companies can use. Photographs below show how the job was done. Note variety of new materials used.



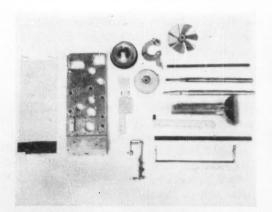
Unitized subassemblies reduce production and inspection costs, simplify repair and replacement.



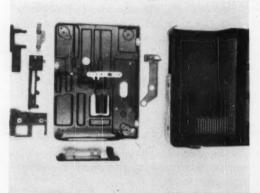
Printed circuits (top) are replacing wired components—saving production time as well as space.



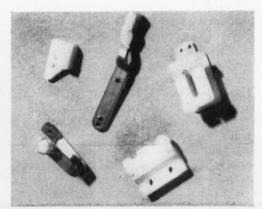
Simpler ejector support and mandrel (right) save ounces without sacrificing performance.



Lightweight aluminum replaces steel, which was previously used for these Time Master parts.



Magnesium die castings provide strength and rigidity at lowest poundage for parts like these.



Nylon offers silent operation as well as light weight. These are slides, actuators, coil forms.

development of heat-resistant plastics like "Mylar" (polyester film) and "Teflon" (tetra-fluorethylene) has made possible an increase in operating temperatures to a point where carbon brush materials, previously satisfactory, now need improvement.

Smaller parts pose production as well as materials problems. New handling and assembly methods are needed—and new tools that can help simplify and speed the job. Smaller, lighter weight fasteners are much in demand also.

Producers of industrial components like heat exchangers and radiators can endear themselves to their customers by reducing weight or size or both—reducing handling and shipping costs without requiring major changes in the finished product.

For example, Precision Castings Company of Fayetteville, N. Y., is helping Electromode Corporation reduce heater-manufacturing costs by furnishing die-cast heating elements to replace the sand-cast units previously used. The new die-cast elements (see photograph below) are not only 30 per cent lighter in weight, but are also easier to mount, require much less machining, and provide better heat distribution.

The fact is, almost every company can get into the act—either by shrinking its own products, or by helping other companies to shrink theirs. Check the chart below to make sure you're not overlooking any good bets.

#### CAN YOU SHRINK YOUR PRODUCT?

Check these points before saying "No"-or "Yes"

## Consider product size and weight reduction as a way to:

- Offer new user-benefits in established markets, or open new markets.
- Reduce product handling, shipping, storage, and installation charges.
- Conserve costly or hard-to-get materials.

## Even if you've rejected "shrinkage" in the past, reexamine your product in the light of:

- New materials and methods that may permit smaller, lighter components (nylon and powdered metal gears; printed circuits).
- New ways to eliminate, simplify, and "package" components.
- ☐ Developments in related fields that may permit miniaturization now, though it was impossible a few years ago. (For instance, recent developments in insulating materials have permitted marked reductions in electrical products in recent years.)

#### But don't shrink your product if:

- ☐ Weight is necessary for proper function.
- Further size reduction would make it so small that it might be hard to handle.
- Additional cost of meeting the special problems of miniaturization (like heat or shock mounting) would not be worth the sales advantage or the savings in shipping cost.

## It's a market, too . . .

There are marketing opportunities galore in the trend toward product size and weight reduction. Producers of new, smaller products have many new requirements—for materials, components, and equipment.

Makers of small hand and powered tools—drills, screw-drivers, and so on—will find many new opportunities in plants making smaller products; as will companies which have long furnished miniaturized components (lamp bulbs, motors, and the like) for use in toys and a few specialized instruments.

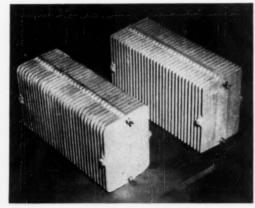
The pictures here show just a few of the items being designed for this new market. Many others could be cited.

For instance, Young Radiator Company is helping manufacturers of industrial automotive equipment produce better, lighter weight units by redesigning its radiator line to make greater use of stampings in place of castings, and reduce radiator weight as much as 30 per cent. The company has also slashed weight and size of another type of equipment—exchangers. One model, for instance, is down from 445 to 230 pounds and from 90 to 49 inches in length, yet retains full cooling capacity.

Take a new look at your own product. How can it answer these new needs?



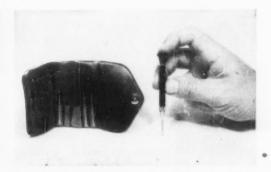
Small power tools, like this Loyd Scruggs kit can find new markets in small-product assembly.



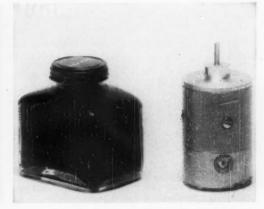
Die-cast element (left), by Precision Castings, helps Electromode reduce heater weight, cost.



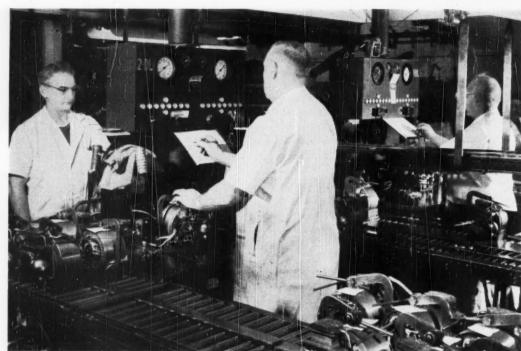
Assembly microscope for miniaturized electronic components is new Bausch & Lomb product.



Tiny hand tools can move into plants that never needed them before. This is a new Insuline kit.



Inkwell-sized motor, built by GE for aircraft use, points way for shrinkage of other products.



DEVANEY PHOTOGRAPI

## The Why and How of

## WAGE INCENTIVES

BRUCE PAYNE Bruce Payne & Associates



The question of whether a company should turn to wage incentives may best be answered by first discovering what purpose they have and how they can be installed with the least trouble. The stopwatch must become an instrument that insures benefits as well as efficiency, for both management and workers must be assured that they follow the best course.

WITH THE RETURN of real competition in industry, responsible business executives are taking a more critical and questioning attitude toward production. The policy of "Keep the men happy and keep it rolling" that mushroomed in World War II and again in the Korean War is disappearing fast. It has become very clear that if a company is going to be able to sell, its product costs have got to be competitive.

One of the key questions which executives have debated, in connection with production policy, is whether or not the company should have a wage incentive plan. If the company has not had one, should it establish one? If the com-

pany has had one, should it abandon it? Unfortunately, much of the thinking and argument about this very important question has, it seems to me, been very unrealistic. Some of the most significant issues have been neglected, and many revealing lessons of past experience have been overlooked.

My thesis in this article will be that, on the face of it, the question of incentives may seem like "six of one and half a dozen of the other" but that when we analyze carefully the record of successes and failures with incentive plans—particularly the failures—we see that incentives can almost always bring about substantial increases in productivity and decreases in costs.

However, a sound foundation must first be laid, and the *real* question is whether or not management wants to face up to that job. I shall conclude with a comment on that question, which is essentially one for the chief executive's judgment.

Reviewing industry's experience with wage incentives, it is certainly very clear that there have been countless instances of failure. For example, not long ago an extensive survey of wage incentives in over 300 businesses and industrial companies was completed. It was found that nearly four out of five plans had failed or developed major weaknesses within fifteen years—a large percentage, within five years. The immediate causes ranged from inept human relations (for example, employee misunderstanding) and poor administration (for example, method changes were not co-ordinated with standards) to technical deficiencies in the plan itself (for example, inaccurate measures of work).

Also, there is no doubt that many efforts to increase productivity and reduce costs without incentives have succeeded. Many managements

have brought costs down 10 per cent or more in the face of the greatest obstacles without the benefit of any sort of incentive pay plan. Also, as everybody knows, there are hundreds of wellrun companies in the Midwest whose workers are paid on a straight hourly basis.

On the other hand, many parts of the record of industry's experience seem to make an excellent case for incentives. In a large number of companies, incentives are working without a question. Managements all across the country have achieved great results with them. At business conferences one frequently hears about how effective incentives are; productivity increases of 20 to 30 per cent per worker are often cited. Costs can be cut. The workers are better paid, but the work force is smaller, fewer machines have to be used, fringe benefits are not so great.

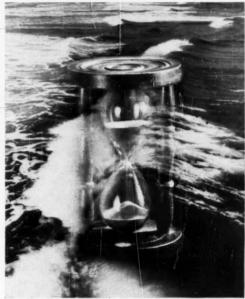
#### For Better Quality

I have seen incentives result in higher quality. To illustrate, recently a prominent textile company succeeded in reorganizing one of its important manufacturing operations, with the help of incentives; one immediate result was that the raw material was processed with fewer defects. (Interestingly enough, workers on the next operation were saved so much time, since they had to contend with fewer defects, that the company experimented and found that it could turn out as high quality work as before with a less expensive raw material.) Cases of this kind are common.

There is growing evidence, despite all the talk we hear about quality being adversely affected by incentives, that where quality control does break down, the trouble lies not with the incentive plan but, usually, with supervisory training. It is significant, too, that only a little over 2 per cent of 246 companies reporting trouble with incentive plans considered quality of work to be a major problem.

In addition, the reactions of employees to the incentive idea are significant. I have never found

a worker who did not want to earn an incentive premium. Moreover, there are signs that unions are coming around to a different view of incentives. We often hear the union castigated for wrecking an otherwise good incentive plan, but a study of causes of failure today will, I believe, show that it is rarely possible to pin primary responsibility on the union. In addition, unions



DEVANEY PHOTOGRAPH

Neither time nor motion can be held in check, but certain aspects of both may be harnessed for industry. The study of these aspects plays an important role in the formation and use of wage incentives.

are tending more and more to accept (reluctantly, perhaps) well-engineered standards, upon which incentives should be based; there is also a growing number of instances where union time-study stewards are making time studies or Methods Time Measurement analyses that are as acceptable as those of the company industrial engineer.

What all this adds up to is that you can use

the record of industry's experience to support either side of the question. You can cite cases for an argument against incentives; you can cite cases for an argument in support of them. On the face of the record, it is hard to make a very conclusive case either way.

#### Why Failures?

But if we go beneath the record and study the underlying causes for failure of incentives as well as the common characteristics of the plans that succeeded, we can reach some clear and definite conclusions. For example, take those 246 companies in the survey where wage incentive plans had failed or developed major weaknesses. Go behind the immediate reasons for failure—inaccurate work measures, misunderstanding about the plan, and the others—and it will become apparent that in every case the company had failed to complete one or more of the following steps before establishing incentives:

 Trained an effective industrial engineering group;

2. Measured all work carefully;

 Analyzed methods for possible improvements and made supervisors methods-conscious;

4. Trained operators in the new methods.

Conversely, in the cases of the companies where incentive plans had succeeded, this fourstep preparation for incentives was conspicuously present.

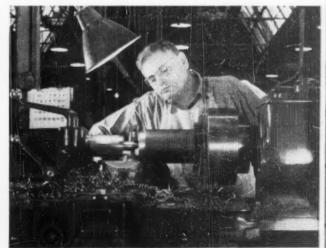
I believe that in each of the companies studied where incentives failed, they could have succeeded. No incentive plan has to fail. But management has to take the time and effort needed to prepare the way. It may take two, three, or four years to do that; if there is any "gimmick," that is it. There are businesses all over the country in which worker productivity does not amount to more than 30 standard minutes of work per hour by any reasonable measurement, and in these companies productivity must be doubled, no less, before management can move



The extensive complexities of measurement result in an infinite number of permutations and combinations. One checking operation may be quite simple, while a second may involve more than just



hands and eyes, and the actual making of a part will take even more time and movement. Breaking such operations down into their component parts, analyzing and taking into consideration all human



DEVANEY PHOTOGRAPHS

and mechanical factors, and arriving at a just and fair decision regarding efficiency is an exacting industrial engineering task. But it must be done if the wage incentive policy is to be successful.

ahead with confidence to establish incentives that will work.

Now let us turn to examine in more detail the four steps the company must take. They are not easy. What kinds of problems do they raise from a management viewpoint? What short-cuts are there? Then we will be in a position to answer the question: Are incentives worth the effort or not?

Productivity is everybody's job in management, but it has now become quite clear, I think, that in a company of any size some man or department with high authority should be made responsible for work standards, methods, and so on, and little else. In a large company, the need may be for a well-staffed department; in a company with 100 to 200 people, one strong man may be enough. In any case, the job is the same: to spark the efforts of line supervisors in actually engineering better standards and methods—upon which incentives are based.

#### Top Management Support

But no matter how successful a man is in such a job, his efforts are wasted if he cannot gain the support of management for his work, and that is why it is so essential for him to be a member of the top management team. He must convince not only the men on the machine, the shop steward, and the foremen that his standards and analyses are correct, but also the top executives. Many an otherwise fine incentive plan has died on the vine for lack of their support. This means that the industrial engineer must have not only ability and tact, but status—top management recognition—and the advantages of that in terms of access to people, authority, and freedom in moving about.

The industrial engineer's job should meet the following specifications:

- 1. He should be responsible in a staff capacity for the direction of changes in production methods and standards of work.
- 2. In status he should be next to the manufacturing vice-president.
- 3. He should work through operating people —foremen and their supervisors—and in co-ordination with other staff groups such as accounting and personnel.
- He should direct time studies, job evaluation, and methods analysis, and advise on the handling of the related human problems.

The *managerial* character of the industrial engineer's job is a relatively new concept. Overlooked for many years, it makes it possible to overcome a problem that has plagued efforts to increase productivity for decades—lack of coordination. Methods improvement and work measurement are a case in point; once regarded as separate operations, they were performed by entirely different departments. One department would look at the work and try to simplify hand operations or develop a better gadget. The other would come along with a stopwatch and record the time each operation took. To-day all this is

changing rapidly. We recognize that methods improvement and work measurement go hand in hand, a principle which has had much to do with the astonishing success of many wage incentive plans.

Granting this conception of the industrial engineer's job, where can men be found who measure up to its specifications? The best place to look is in the company's own ranks, for here management can tell, by its own observation, whether a man is capable of leadership, of earning the respect of his fellows, and whether he has the necessary interest and ability in industrial engineering.

If management does decide to seek the man within the ranks of the company, there is still the question of which possibility is the best for the position. There are many ways of doing this.

Psychological tests have often proved helpful in supplementing management's first-hand observation. However, they should never be used as a crutch. It is better not to use psychological tests at all than to rely on them too much.

Some of the best tests available to-day can be used only by professional psychologists. Even the best test in the most capable hands should be adapted to the particular needs and objectives of the company. Here are a few of the tests which leading industrial psychologists have found useful in selecting men for industrial engineering:

1. Intelligence

"Adaptability Test" (Science Research Associates, Inc., Chicago, Ill.)

"Otis Mental Ability Test" (Psychological Corporation, New York, N. Y.)

2. Personality

"Personal Audit" (Science Research Associates, Inc., Chicago, Ill.)

"Guilford-Martin Inventories" (Sheridan Supply Company, Beverly Hills, Cal.)

3. Interest

"Strong Vocational Interest Test" (Psychological Corporation, New York, N. Y.)
"Kuder Preference Record" (Science Research Associates, Inc., Chicago, Ill.)

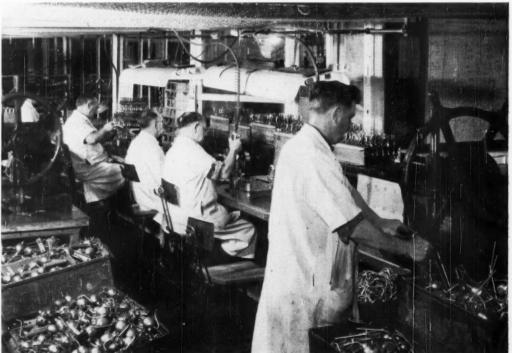
4. Aptitude

"Arithmetic Reasoning Test" (Science Research Associates, Inc., Chicago, Ill.) "Survey of Mechanical Insight" (California Test Bureau)

In my observation, inaccurate measurement of work—which necessarily leads to inaccurate standards—is the greatest single immediate cause of incentive plan failures. Almost single-handedly it is responsible for the breakdown of nearly three out of ten plans. Not until you measure a job in terms of the minutes of work produced can you make the sound standards upon which incentive pay must be based.

A modern-day advantage of work measurement is that it can be done, using the techniques of predetermined time standards, even before a production run starts. In other words, management can get an estimate of time and labor cost before a job starts. The accountants no longer have to depend upon rough estimates or ask, "How did we do something like this five years ago?" They have definite facts to go by from the very start.

Work measurement is not easy. It poses subtle Continued on page 64



DEVANEY PHOTOGRAPH

Because the assembly of a finished product involves men and materials of different capacities, the industrial engineer who makes such analyses as are needed must be a fully and carefully trained man. He must be capable of not only assessing the varying situations objectively, but also of bearing in mind the psychological make-up of each man and each operation. Such a man can be of great value.



Wellington Sears reinforcing fabrics insure long life and top performance in rubberized industrial convevor and power transmission belts.



"Oceanic" harvester duck is a specially constructed fabric for use in conveyor belts on agricultural machinery where strength and durability are required.



made of laminated plastics requiring specially constructed fabrics as fillers.

## "Abrasive" problems rub us the right way

The great emphasis on texture in many finished goods industries plays up the importance of abrasive-coated fabrics for sanding wood, metal, and other materials. Wellington Sears cotton drills and jeans, made to abrasive specifications, are indispensable as backings for sanding belts, discs, and similar finishing devices.

Our increasing role in this field stems from a desire not merely to make the fabric-but to make it better. Indeed, not only in abrasives, but in the widest range of industrial fabrics, we not only try to answer problems -but to anticipate them, in our laboratories, plants, and office routine. If you believe that thinking ahead is a prelude to moving ahead, why not call your Wellington Sears representative?

For your free copy of "Modern Textiles for Industry"-24 pages of facts on fabric development and application-please write to Wellington Sears Company, Department F-3.

#### For These and Other Industries

Rubber Automotive

**Fabric Coating** 

Abrasive Chemical

Food Processing Sugar Refining

Petroleun Mining Ceramics Farm Machinery

#### Wellington Sears Offers' Many Varieties of These Fabrics

Cotton Duck Drills, Twills and Sateens Automobile Headlining Industrial & Laundry Sheeting

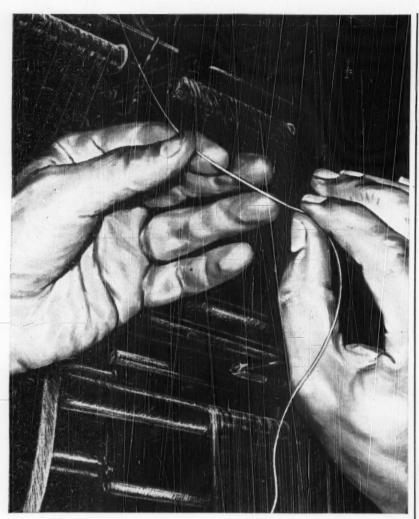
**Chafer Fabrics** Synthetic Fabrics Airplane & Balloon Cloth **Fine Combed Fabrics** Bonded (Non Woven) Fabrics



FIRST In Fabrics For Industry

WELLINGTON SEARS COMPANY, 65 WORTH STREET, NEW YORK 13, N. Y.

OFFICES IN: ATLANTA . BOSTON . CHICAGO . DETROIT LOS ANGELES . NEW ORLEANS . PHILADELPHIA . SAN FRANCISCO . ST. LOUIS



### Put Your Textile Problem in These

"Thinking Hands"

You've known people who seem to "think with their hands"... so swift are they to follow thought with dexterous action. Here at Schlegel we place great value on "thinking hands"... the highly-trained hands of Schlegel's textile engineers... the skilled hands of Schlegel's textile craftsmen.

When you outline an industrial textile requirement to Schlegel, our "thinking hands" go to work — experimenting and designing and testing with modern textile equipment — until we are able to present not merely a plan, but a completed *product*. A product created to meet your specific needs — and capable of being produced in volume in Schlegel's own plants.

Do industrial textiles enter into your company's plans for tomorrow? Schlegel's research and production facilities, backed by 68 years of experience, are at your service. We cordially invite your inquiry.



For the AUTOMOTIVE industry — Schlegel certified woven wool pile lining, weathercord, assist straps, robe rails, and other textile interior trim • For the AIRCRAFT, RAILROAD, and SHIPBUILDING industries — wool pile lining in metal-contained channels • For HOMES and COMMERCIAL BUILDINGS — Schlegel Adjusto-Seal weatherstripping • For the MEDICAL SUPPLY, METAL and WOODWORKING, OFFICE SUPPLY, and RAILROAD EQUIPMENT industries, and for NATIONAL DEFENSE — various woven textile specialities.

#### WAGE INCENTIVES

Continue

and perplexing problems. Here is another reason why a top-notch industrial engineer, with as many men as he needs to help him, is an absolute necessity. Too many managements have made the fatal mistake of thinking that they can get along with somebody hired off the street. It takes a skilled, experienced man even to get the facts; in a paper products plant, for example, the workers handle paper of different dimensions, coating, and weight - differences which can throw a time study way off if it is not done expertly.

Again, rating an operator's performance involves subjective judgment. The fact that a job takes, say, two minutes means nothing in itself. Was the operator highly skilled and fast, or slow and fumbling? The observer must decide, and adjust his figures accordingly. His judgment is often subject to argument, and he must be able to defend it with authority.

\*\*\*\*



The AUTHOR

BRUCE PAYNE, president and director of Bruce Payne & Associates, began his business career with the Republic Steel Corporation in 1935. A graduate of the University of California and the Harvard Graduate School of Business Administration, he has lectured at Western Reserve University and John Carroll University.

His firm is one of Management Consultants and he, therefore, is active in all phases of management endeavor. He is national president of the Society for Advancement of Management and chairman on the Rating of Time Studies.

Mr. Payne retains an active interest in Harvard Business School affairs being a member of the Fund Council and past president of the National Association.

\*\*\*\*\*

Fortunately, real progress has been made in this area of work measurement; management should take full advantage of every bit of it. As Professor Franklin E. Folts has stated in his article, "Thinking Ahead" (*Harvard Business Review*, September 1951, page 144):

"Since World War II considerable study has been made of what constitutes a fair day's work, and, despite the objections of some organized labor people, standards of a fair day's work are beginning to

# YOU SPEND 99% TO RECORD ON 1%



Paper used for accounting records overages only 1/100th of total accounting costs, even when you use the finest of recording papers. To shave this very slight expense, you could use inferior papers, but your accounting records are far too valuable for that infinitesimal "saving". The most farsighted and efficient policy is obviously to use L. L. BROWN rag-content papers for all accounting work.

For safety and true economy always specify L. L. BROWN papers. Your regular supplier knows them thoroughly. He will gladly help you select the ones best suited to your particular needs.

### FREE



booklet, "How to Get Greater Service and Value from Your Records and Letters". It is a reliable and helpful guide to selecting the right paper for each of your needs recording or correspondence.

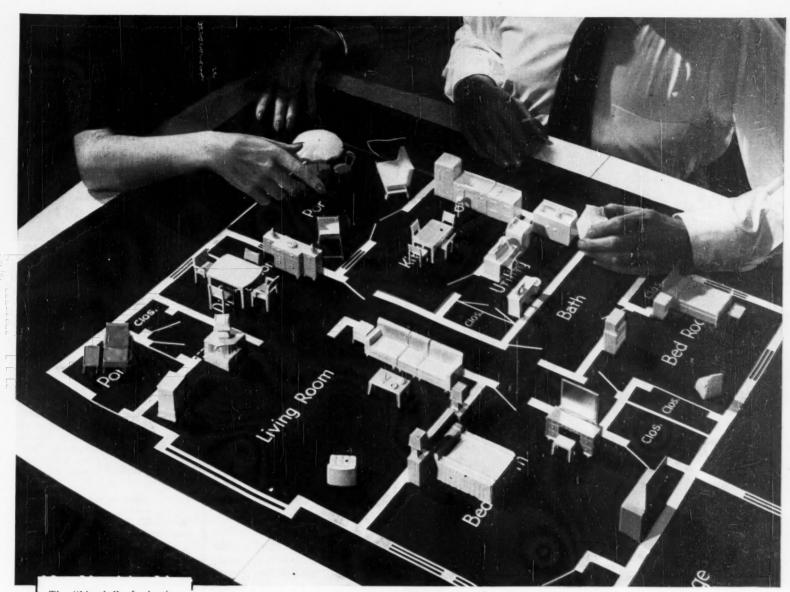
# L. L. BROWN





L. L. Brown Paper C Adams, Mass.	0.	
	E copy of "How to Ge rom Your Records and	
Name		
Title		J
Company	MO.	
Street.	71r	
City	State	1
		CZ

and



The "big six" of plastics (styrene, phenolics, cellulosics, vinyls, aminoplasts and polyethylene) are "modern design materials" for

Air Conditioners Automatic Washers Dishwashers Electrical Appliances Floor Coverings Furniture Home Freezers Home Furnishings Housewares Lamps Mixers Radios Refrigerators Stoves Television Sets Toasters Vacuum Cleaners

Wall Tile

## IS YOUR PRODUCT IN THEIR PLANS?

Higher incomes, a higher standard of living, new leisure time, and new social patterns have changed consumer needs and desires radically in recent years. Today consumers are demanding *new kinds* of products—"modern products for modern living"—mostly unknown or in primitive form ten, twenty years ago.

This tremendous demand for new and better products is leading alert manufacturers to take a continuing second look at their products... and the materials from which they are made. For example, modern research by Monsanto constant-

ly provides industry with *new plastic materials* with which to keep one-jump ahead of rapidly-changing consumer demands.

In the past year alone, Monsanto has added 20 new formulations to its "big family" of high-quality plastic raw materials. Perhaps one of these—or another Monsanto plastic—can help you, too, produce better, faster selling products at lower cost. Write today for complete information. Also, you'll want to send for Monsanto's new report to management: "Outside Design Influence Sets Style of Consumer Items."

### MODERN MATERIALS FOR MODERN LIVING PLASTICS



MONSANTO CHEMICAL COMPANY, Plastics Division, Room 1401, Springfield 2, Mass.

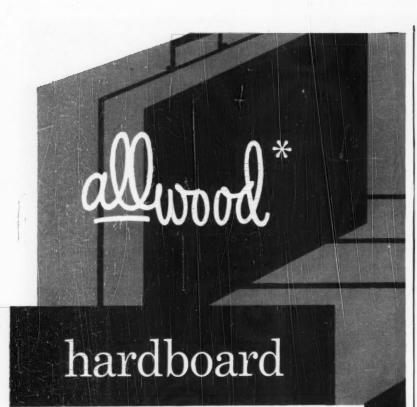
Please send me your new management report: "Outside Design Influence Sets Style of Consumer Items."

Name & Title

Company

Address

City, Zone, State



## packs a profit

Manufacturers of trunks, suitcases, and traveling cases have discovered Allwood to be an easy-to-use wood panel which adds basic strength and form to their products. It works successfully, too, in toys, furniture and shipping containers. Allwood hardboard is easy to cut, bend and fasten.

Write, wire or call for help on your problem, or send for free technical booklets.

OREGON
LUMBER
COMPANY
DEE, OREGON

\* Bademark Gregian Lumber Co.

emerge. The recently released films on rating put out by the Society for Advancement of Management may well be a significant contribution in this area."

Work measurement not only makes it possible to set new, better standards for old jobs-for example, the determination that operators should turn out 27 units per hour instead of 23, doing the job the same way-but, even more important, it makes it possible to discover and agree upon better methods. The measurement of work provides a common language, a frame of reference, without which it is often nearly impossible to build a team approach to methods improvement. And methods improvement is absolutely essential to the concept of a fair day's work. It is surprising to find how many incentive plans have failed because management did not appreciate that relationship.

#### Work Variations

We know that if five men start off together doing identical production jobs, after a time they will be doing the job in five different ways (unless carefully instructed). Even if they start off with the same method, which is unlikely, they will soon be using five different methods. One of those methods will be more efficient—and easier—than the other four. It is the only one to use in figuring a fair day's work.

What we do *not* seem to know and take into account, all too frequently, is that the superiority of the one method is not self-evident to the other operators. They will not "see it" until comparative time values are set that they can understand and believe in. If necessary,

Continued on page 71



"Now just a minute, Fergus! This makes the third time in a month your wife has sent all your clothes to the cleaners!"





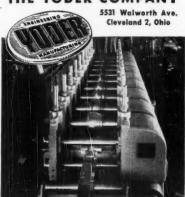
Cold Roll Forming holds a perpetual challenge to your skill and ingenuity in devising new ways to step up production and reduce cost. Infinite possibilities are suggested by thousands of existing applications in the high-production metal working industries.

New applications are constantly being discovered. Total production of Yoder cold roll forming machines now runs into billions of feet annually.

A Yoder roll forming machine can be arranged for doing other operations, such as notching, embossing, perforating, curving, coiling, welding, etc., at little or no extra labor cost. Yoder engineers are at your service in designing such multipurpose production lines.

The Yoder Book on Cold Roll Forming discusses its varied functions and advantages, with scores of photos illustrating end uses of roll formed products. Ask for it.

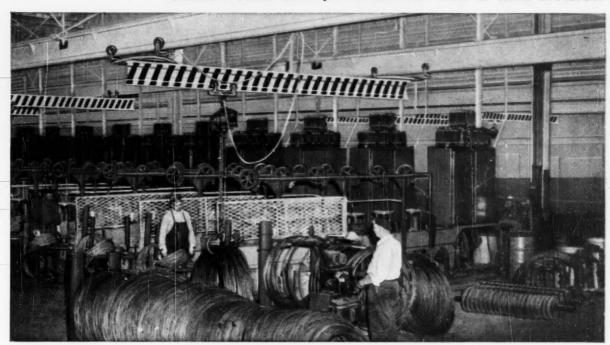
#### THE YODER COMPANY



## "OUR ACCIDENT RATE DROPPED 75%"

with Du Pont Color Conditioning

-DETROIT STEEL CORP., PORTSMOUTH ROD & WIRE DIVISION



The intelligent use of color means profit. Through a scientific approach to color selection, Du Pont Color Conditioning lowered eyestrain and fatigue . . . boosted production for Portsmouth Rod & Wire Div. of Detroit Steel Corp.

## An actual case history where this scientific painting plan reduced accident rates...improved morale and production

Mr. Uno V. Johnson, Superintendent of the Portsmouth Rod & Wire Division, Detroit Steel Corporation, Portsmouth, Ohio, reports, "When we adopted the Du Pont Color Conditioning plan in the first quarter of 1951, our accident-frequency rate stood at 9.2. Our records for the same period during 1952 show that this figure has been reduced to 2.3—a drop of 75%. And the severity rate of these accidents has fallen from .90

to .37 . . . a drop of 59%.

"Our workers are certainly appreciative of the pleasant working conditions that have been accomplished and we have noticed that our employees take more pride in their work which reflects considerably in the quality and quantity of production."

Throughout hundreds of industrial plants, office buildings, hospitals, apartment buildings, schools, restaurants and

stores, the value of Du Pont Color Conditioning is being proved every day. Scientifically selected paint colors have a subtle but positive effect on the mind. They improve morale and efficiency... result in lower operating costs.

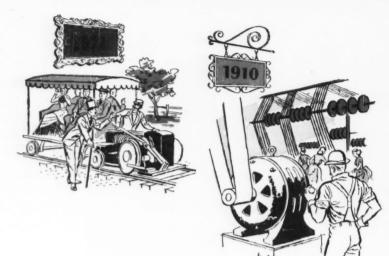
Color Conditioning costs no more than ordinary maintenance painting . . . less in the long run. Discover all the ways Du Pont Color Conditioning can pay off for you. Mail the coupon today.

New Free 32-Page Book! Find out how Color Conditioning can meet the specific needs of your plant. Get this new book, illustrated in full color. Mail the coupon today!

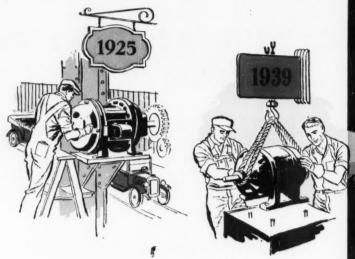


Please send me, at no cost, your new 32-page bool "Du Pont Color Conditioning." I'm interested i Color Conditioning for  industrial plants;  hos	n s
pitals; ☐ hotels and apartment buildings; ☐ schools ☐ restaurants: ☐ stores; ☐ office buildings.	s;
(Offer not good outside Continental United States	s)
Name	
Title	
Firm	
Address	
City and State	

E. I. du Pont de Nemours & Co. (Inc.) Finishes Division, Dept. DR-310, Wilmington, Del.



1878: Thomas Edison builds an electric motor for his Menlo Park "Express" . . . . 1910: G.E. establishes motor leadership in the infant electric industry . . . . 1925: G.E. adds 4 times more power per pound as it develops newer motor models . . . . 1939: the first Tri-Clad motor sets a 14-year standard . . . becomes the most copied motor in the industry.



General Electric Announces

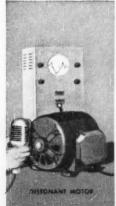
# A NEW MILESTONE IN MOTOR HISTORY

New TRI 55 CLAD motor climaxes

75 years of engineering leadership

The General Electric Tri/Clad '55' is an important milestone in motor history. For this is a completely new motor. Born out of thousands of engineering man-hours, the Tri/Clad '55' incorporates design improvements that go far beyond mere modifications. Many years of pure research, the discovery of new, better materials, the knowledge of how to make better use of present materials, and improved manufacturing processes all make the Tri/Clad '55' motor the new leader in the motor field.

You as a motor user should take the opportunity to see and test this motor for your-self. Contact your nearest G.E. Apparatus Sales Office or G.E. Motor Agent and tell him you want to see the new Tri/Clad '55'. General Electric Company, Schenectady 5, N. Y.



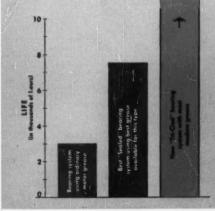


DESIGNED FOR BETTER PERFORMANCE:

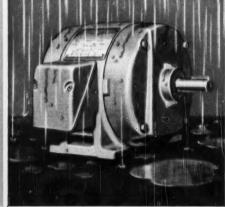
Tri/Clad '55' has a low noise level . . . gives

you up to 53% increase in shaft output per

pound . . . has higher full-load speeds.



ENGINEERED FOR LESS MAINTENANCE: 10%-life tests (such as shown) prove the Tri/Clad '55' bearings last longer without regreasing than any other bearing system.



BUILT TO LAST LONGER: cast-iron strength ... more fully enclosed dripproof construction... water-shedding stator windings... polyester film insulation eight times stronger.







TRI 55 CLAD

THE LEADER IN MODERN MOTOR DESIGN

Progress is our most important product

GENERAL (36) ELECTR



ELECTRIC



#### WAGE INCENTIVES

Continued from page 66

the industrial engineers can let them time the jobs themselves, check the charts, and so forth.

Methods improvement is a broad field, and the smart management will "go to town" in it. In the short space I have here, I can only touch on a few of the more interesting points that executives should bear in mind.

First, production supervisors should be brought in on the work. Management cannot delegate methods improvement to specialists, in the plant or from outside, and then forget about it. Not only is the supervisor's help essential in methods analysis-for example, he is indispensable in helping the control people to get exact and accurate information about the jobs-but he is in a position to make a tremendous contribution to the task of improving or altering a job so that the most can be gained from the engineers' studies.

Training in methods analysis is a big help. I know of one supervisor in a Southern firm who, after 30 years with the company, began finding ways of simplifying operations which he apparently had never thought of changing before. What started him thinking in terms of change and improvement—for instance, putting stops on a measuring job so that the operator's eye didn't have to travel back and forth—was some training he received in methods.

Of course, methods-consciousness takes more than training. It is an

attitude which develops from dayto-day experience. Here again we come back to the importance of that industrial engineering department representing management out on the plant floor at the lathes and presses.

A second point: Methods improvement requires an ability to think in terms of many operations working together. A change in one operation may necessitate a change in the next, which had previously been all right. If workers using better methods are able to put the panels through one press without so

many defects in stamping, the operators on the next machine won't have to put so many panels on the reject pile. Unless the implications of revised methods and standards are anticipated and acted upon, the benefits of change may be largely lost.

A final point: It has become popular in business groups to say that workers do not want to put out a fair day's work any more. I disagree. In most plants I have seen where workers aren't putting out a fair day's work, the basic trouble has been wasted effort-not lack of it. Once it is clear to them that working effectively is just as easy as working ineffectively, they do not resist as they might otherwise; most of them take pride in the efficiency and results of their work. Incentive pay-and other inducements, if it is possible to make them, such as better lighting or working conditions -may be the prospect which helps to open their minds to change at first, but the inner satisfaction they get from doing the job better may be a more enduring one in the long

It has been said that "It costs to







## THE ROYAL BANK OF CANADA

Head Office, Montreal

TAMES MUIR President T. H. ATKINSON General Manager

#### Condensed Annual Statement as on 30th November, 1953

ASSETS		
Cash, checks and balances with other banks	\$	600,920,111.74
value		972,141,264.96
Other securities, not exceeding market value		101,301,756.80 149,280,473.79 994,865,750.13
Liabilities of customers under letters of credit Other assets	_	51,213,786.75 26,133,044.99

#### LIABILITIES

Capital, reserve and undivided	
profits	\$ 108,299,175.62
Notes in circulation	83,335.04
Deposits	2,734,644,076.93
Letters of credit outstanding	51,213,786.75
Other liabilities	1,615,814.82
	\$2,895,856,189.16

#### Over 790 Branches

IN CANADA, ARGENTINA, BRAZIL, BRITISH GUIANA, BRITISH HONDURAS COLOMBIA, PERU, URUGUAY, VENEZUELA, CUBA, HAITI, PUERTO RICO, DOMINICAN REPUBLIC, BRITISH WEST INDIES. OFFICES IN NEW YORK, LONDON AND PARIS. CORRESPONDENTS THE WORLD OVER.

London Branches

6 Lothbury, E. C. 2

2 Cockspur S. W. 1

\$2,895,856,189.16

Auxiliary in France THE ROYAL BANK OF CANADA (FRANCE) Paris

NEW YORK AGENCY 68 William Street

JOSEPH W GANANN WALTER H. SHARPE Agents

train but it costs more not to train." (R. O. Beckman, How to Train Supervisors, 1944, Harper & Brothers, New York, N. Y.) Nowhere is that more true than in the development of sound standards as a basis for wage incentives. To-day the reasons for training are more compelling from any point of view than they have ever been. We have the rich experience of World War II and the post-war to draw from; we have Training Within Industry, with its Job Instruction Training, Job Methods Training, and Job Relations Training programs; and of course there are other aids. All these things mean that management can invest in training with greater confidence of gaining greater results.

#### Follow Through

Training poses many problems. No mistake is more fatal than to assume that the job is done when the operators are shown what is the right way and what is the wrong way to do an operation, however important that instruction may be. The training sessions must be followed up by the supervisors. If a man is inclined to forget to wear his safety gloves when handling sharpedged panels, for example, his supervisor must keep after him.

Then, too, human relations problems can make or break an operator training program. Operators whose morale is low, who think management has "got it in for them," who suspect the foreman's every motive, are certainly not likely to respond well to training.

From a management point of view, a great deal can be done to improve the skills of its representatives on the front line-the foremen. Perhaps the most significant factor in this situation is that fore-



"I'd be glad to lend you five until next week, Motley, but I happen to know you won't be with us after Friday."

## 50,000 FIRMS **SPECIFY** SPEED SWEEP



Sweeps faster, cleaner, Outlasts Ordinary Brushes 3 to 1!

WRITE FOR STYLES, SIZES AND PRICES TODAY

Milwaukee Dustless Brush Co. 530 N. 22ND ST., MILWAUKEE 3, WIS.

# gives Maximum Strength with Minimum Weight

Not welded, not riveted, not expanded, all one piece of material, gives a non-skid surface in all directions, a diamond shaped surface in all directions, a diamond shaped pattern with open space area in excess of 75% of surface, easily cleaned, sanitary. Simple to install, ideal for on-the-job fabricating, replaces existing grating with no supporting structural changes necessary. Strong yet light in weight. Ideal for stair treads, work platforms, catwalks, flooring, running board steps, in fact for any purpose where safe flooring is a factor. Available in steel or aluminum. Write for new catalog, showing new low prices, methods of application, typical installations and list of nationally known users.

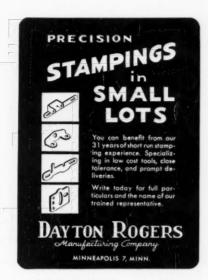
Distributors in all principal cities.



#### **GRIP-STRUT** division The Globe Company

4014 S. Princeton Ave.

Chicago 9, III.





THE "WHIPPET" MARKER

Write for Booklet: Dept. D-10 23 E. Juckson Blvd., Chicage 4

RUCK LEASING SYSTEM



Automatically dates, codes, or marks production runs of cartons, packages, filled bags, boxes, rolls, cans, etc. For candy manufacturers, food packers, distillers, oil companies, etc. Send for free catalogue.

THE INDUSTRIAL MARKING EQUIPMENT COMPANY, INC.

- 454 Baltic Street, Brooklyn 17, N. Y., Dept. DR -



men want to improve their skills; if management fails to step in to fill their needs it passes up a golden opportunity. In a large Southern textile mill, for example, a recent survey revealed that over 98 per cent of the secondhands were in favor of supervisory training and were willing to help develop a plan even if it meant working on their own time. (Wendell M. Patton, "Supervisory Training: What Do Secondhands Think Of It?" Textile Age, August 1952.) Situations like this do not exist everywhere, to be sure, but they are not really exceptional, either.

### Consultation Needed

The implication of this is that it is especially important to consult supervisors in advance of drawing up a training plan in order to get their views on what problems they would like help with, on what kinds of situations bother them most. If training is crammed down their throats, their desire for it in any form is likely to dwindle fast. I suspect that in many plants where, unlike the textile mill just mentioned, foremen are apathetic to management efforts to "improve" them, their attitude could be traced to earlier misguided management actions in connection with training.

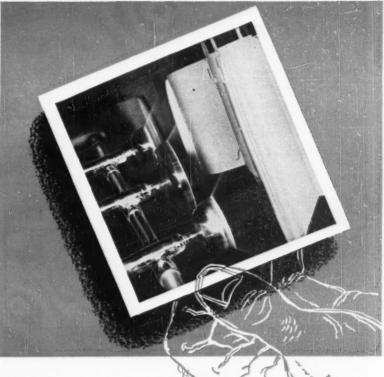
The four steps necessary before an incentive plan can be expected to work mean a lot of work for



PILGRIM STATUE BY GENDREAU

everyone, top executives included. They mean hours of study and careful thought, new administrative problems, worry. Are they worth it? This is the question of judgment which top management must decide for itself. Let me venture a few observations and opinions, however, for what they may be worth.

In the first place, it is my observation that a company should take those four steps—and keep working at them, because past efforts soon



This is Painting

Yes, it's the modern way with the RANSBURG NO. 2 PROCESS, an amazing development in electrostatic spray painting.

Spray painting is no longer a hit or miss proposition. It's a science with the Ransburg No. 2 Process. There is NO OVERSPRAY TO BE EXHAUSTED...NO COMPRESSED AIR IS USED...NO OPERATOR SKILL REQUIRED.

Manufacturers of a variety of products report new efficiency percentages never before thought possible... efficiencies in the high nineties. With the RANSBURG NO. 2 PROCESS, they are getting increased production, higher quality work, and large savings in materials, manpower and money.

WHO CAN USE IT? Almost anyone who produces painted or coated products. Whatever your product might be, if your production volume justifies conveyorized painting, it's possible that the Ransburg No. 2 Process will do the job better . . . and for a fraction of your present costs.

RAMSBURG des

May we send you a copy of our brochure which describes the Ransburg No. 2 Process in detail? It also shows production installations in plants throughout the country.

ELECTRO-COATING CORP.

INDIANAPOLIS 7, INDIANA





FORMERLY THE FULL TIME OF THREE GIRLS..

(one on each shift) was required to apply water-moistened labels to these combination salt and pepper shakers made by Berea Plastics.

NOW NO SPECIAL LABELING OPERATORS ARE NEEDED.

The simplified Avery labeling method permits the press operator to label each shaker as he removes it from the mold.

SPEED AND ECONOMY - Kum-Kleen self-adhesive labels are LAID ON with a finger-touch - no moistening, no mess! They stay neat and attractive - won't dry out, pop, curl or peel - yet are easily removed without soaking or scraping.

Where can YOU use these labels in YOUR business?

### AVERY ADHESIVE LABEL CORPORATION

117 Liberty St., New York 6 1616 So. California Ave., Monrovia, Calif. 608 So. Dearborn St., Chicago 5 Offices in Other Principal Cities

become dated-whether it has incentives or not. In other words, it seems to me that an effective industrial engineering group, work measurement, methods improvement, and training are general conditions of success in competition-"fundamentals" that no company can afford to overlook in 1954.

### Time Is Important

Moreover, it is important to take them (if they haven't been taken already) without delay. Cost-consciousness is a precious attitude that cannot be turned on and off at will. It often takes a long time to reverse previous patterns of thinking. That means getting down to brass tacks with a concrete program itself, for it is difficult to change attitudes except as a result of hard thinking in terms of hard problems.

If it is accepted, then, that the four steps are fundamentals for any company, so that the question of incentives can be isolated and considered on its own merits, we can move on to a further observation: Industry does not get a full day's work from most straight hourly paid people. Certainly some companies are doing pretty well on an hourly basis, especially when judged in the light of competitors who are on the same basis; yet, it seems to me, very few firms are doing as well as they might. Wage incentives are required for the true stimulation of employees and supervisors (who should have them, too).

I am one who believes that incentive application can always be a successful experience. With the modern techniques available to every company in the country, to-day, management can set up a successful incentive plan with greater confidence than ever before.

THE END



"Does the noise of the rustle of papers disturb you, Jackson?



It's the Revolvator® Portable Uplifter Elevator

Adaptable for shop use or warehouse handling and ideal for shipping and receiving — the new electric Uplither is the real buy today in materials handling. In two capacities, 1000 - 2000 pounds, platform sizes 24 x 24 and 30 x 30, lifts of 62 and 65 inches on standard models — the Revolvator Uplither can be had powered by a variety of electric circuits ranging from an automobile battery to 220 volt currents.

Priced under all competition, the Uplither includes all the safety and convenience features that have made Revolvator portable elevators a standard in industry. Get full information today on this new, easy operating inexpensive portable elevators for your particular needs.

Write or phone

Write or phone

### REVOLVATOR

8702 Tonnele Avenue, North Bergen, N. J. . UNion 3-8120



### provide a charted record of every movement of your trucks . . .

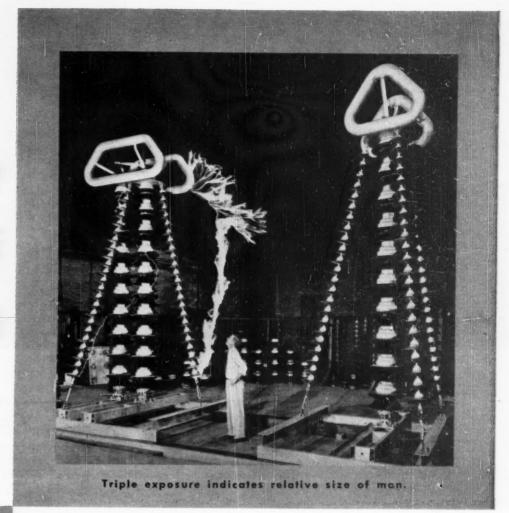
At the start of a run, a chart is placed inside the Tachograph. On this chart all important information is automatically recorded—When engine started... How long engine idled... When vehicle was in motion... When vehicle stopped... Distance traveled between stops... and How fast vehicle traveled. To get full information as to how you can benefit, mail coupon below.

TACHOGRAPH helps me to be a better driver

My dispatcher knows just how I handle my truck on every trip. It proves my ability and helps me in getting up my reports.

Wagner ELECTI		
Please send me free bull	etin SU-3	
NAME		
COMPANY		
ADDRESS		
CITY	STATE	
We operate (number)	vehicles	884-8

# Over the HIGH-VOLTAGE HORIZON



### I-T-E CIRCUIT BREAKER CO.

manufacturers for industry

CIRCUIT BREAKERS

METAL-ENCLOSED SWITCHGEAR

POWER SWITCHING EQUIPMENT

MECHANICAL RECTIFIERS

ELECTRONIC COMPONENTS

SPECIALIZED METAL FABRICATIONS

### LOOKING INTO THE FUTURE...

at transmission switches being readied for tomorrow

Man-made lightning—more than a million volts—is only a part of the research activity constantly being conducted to assure better electric service tomorrow.

A peek inside the laboratory gives you some idea of what the switch of the future may look like. Here, a tremendous, blinding flash of lightning becomes a yardstick for the engineer—to help him determine insulation requirements, open switch gaps, and general design factors. Corona shielding, momentary values, and operating efforts are also gauged.

I-T-E has been delving into such fundamental electrical problems for years. Solution of many of these problems has vastly improved electric service—to industrial plants, railroads, and homes—everywhere.



I-T-E CIRCUIT BREAKER CO.

# The Trend of BUSINESS

DEVANEY PHOTOGRAPH

production
prices . . .
trade . . .
finance .

Despite forecasts of a slight downward readjustment in the economy, consumers paid little or no attention to these predictions as Christmas sales reached an all-time high. Expenditures for plant and equipment in the first quarter of 1954 were forecast as being 5 per cent above the like 1953 period which had been marked by exceptional building activity. Another dark spot appeared to be brightening as farm prices steadied and it was thought that they might rise somewhat in the next year. Consumer credit outstanding was at an all-time high.

HE OUTPUT of goods in the nation in November and the early part of December was below the year-ago level. This marked the first time that industrial output had dipped below the preceding year since the steel strike in the Summer of 1952. Production continued to ease from the preceding levels and by the end of November was 6 per cent below the postwar peak of March 1953.

As measured by the Federal Reserve Board, industrial production in November stood at 228 (1935–1939=100). This was 2 per cent below a month ago and 3 per cent below a year ago. The December index was forecast at 225. Mineral output reflected the greatest decrease as it was 7 per cent below the similar 1952 mark and was 2 per cent below the preceding month.

Manufacturing production was 2 per cent below a year ago and 1 per cent below a month ago. Durable goods output was 2 per cent below both a year ago and a month ago. The production of non-durable goods was unchanged from the preceding month and was at a level of 2 per cent below the similar 1952 period.

Steel production for the month of November was estimated at 8.7 million tons. This was 8 per cent below a year ago and a month ago. Despite the easing in output in the latter part of the year, the expectations of steel output at

an annual rate of 112 million tons were realized. This was a new peak for steel production and was 20 per cent above 1952. Preliminary forecasts placed steel production in 1954 at between 95 and 100 million tons. This output would be the third largest on record and be surpassed by only 1951 and 1953.

New orders for steel were somewhat higher than in the preceding months as automobile manufacturers increased their 1954 production goals. However buying was on somewhat shorter terms than in previous periods. Orders were usually placed on a 30 to 60 day basis, rather than the 90 to 120 day basis which had been common in previous years. Most steel was in good supply with the exceptions of structural steel, oil pipings and casings.

Automobile productions dipped sharply from October to November, 33 per cent, and was 18 per cent below a year ago. Holiday closings and changeover operations were partially responsible for the month-to-month decrease. The decrease from a year ago was in line with the production cuts for 1954 announced by some makers. However, it was anticipated that gradually production goals would be revised upwards unless there was a sharp decline in retail automotive sales. Most new models reflected little change in styling but horsepower was upped in many

instances and the automatic transmission systems neared the classification of standard equipment in motor vehicles.

Makers of automotive parts and accessories reported their production as being somewhat below a year ago and a month ago. As the purchase of so-called optional equipment was no longer necessary to purchase a new car, demand slackened somewhat. In addition, many manufacturers are now turning out parts and accessories themselves or seeking price cuts for this equipment from the makers.

Coal production in November was estimated at 35.4 million tons. This was 14 per cent below a year ago and 13 per cent below a month ago. Continued warm weather in November curtailed demand somewhat and freight carloadings of coal were 7 per cent below a month ago but were 8 per cent above a year ago.

Petroleum production, estimated at 6.1 million barrels daily in November, was 7 per cent below a year ago as efforts to pare stocks continued. By the end of November, gasoline inventories were 18 per cent above the comparable 1952 period.

Electric power production in November continued to surpass the year-ago level by a margin of approximately 6 per cent. By the middle of November, it was only 1 per cent below the all-

time peak reached in August 1953. December figures were expected to rise even further and set a new record.

Textile mills were generally less active than at the same time a year ago although there were variations among different lines. Cotton manufacturers reported activity as being almost on a par with a year ago while producers of blended fabrics reported greater output than at this time in 1952. Wool output continued to be substantially lower than in the preceding period as demand lagged at the retail level.

Paperboard production, regarded by some as a short term indicator of business activity, was about 4 per cent below the October level and about 4 per cent higher than in 1952. The backlog of unfilled orders slipped 12 per cent from the late October level and was 18 per cent below a year ago. New orders were almost unchanged from a year ago and were about 6 per cent below the preceding month. During November, papermills operated at 96 per cent of capacity. The October rate was 98 per cent.

Lumber production in November was 3 per cent below a year ago while new orders were 2 per cent below the similar 1952 mark. Shipments were approximately 2 per cent below a year ago.

Construction activity in November was estimated at \$3.0 billion, 5 per cent above a year ago and 7 per cent below the preceding month. Spending for private construction reflected an increase of 6 per cent over a year ago while public expenditures were at a rate of 3 per cent above the similar 1952 level. Residential private construction was 2 per cent below a year ago although the eleven-month total was 6 per cent above the comparable 1952 period. The number of new dwelling units started in November was

close to the 1 million annual seasonally adjusted rate and was slightly below both the October and 1952 levels.

Expenditures for construction in 1954 were forecast at \$34 billion, down 2 per cent from the 1953 figure of \$34.7 billion. Spending for private construction was forecast at \$23.4 billion, 3 per cent below the current year, while public spending was expected to dip 1 per cent from the 1953 level of \$11.3 billion. Farm construction spending was forecast at \$1.5 billion, 12 per cent below the 1953 level. Industrial outlays were expected to dip 14 per cent while spending for commercial buildings was forecast at \$1.8 billion, 10 per cent above the level of 1953.

Building permits which frequently precede construction activity by two to three months were estimated in November at \$376 million. This was 15 per cent above a year ago and 12 per cent below a month ago. For the first eleven months of 1953, building permits were 15 per cent above a year ago. The South Atlantic and East Central Regions continued to reflect the greatest year-to-year increase while the South Central and West Central regions were almost unchanged from the preceding year.

The latter two are primarily farm regions and new construction activity has been somewhat limited in these regions because of the decline in agricultural income. The South and East Central Regions have been undergoing the greatest industrial expansion and have therefore reflected the greatest increase.

New plant and equipment expenditures in the first quarter of 1954 were expected to amount to \$6.5 billion. This estimate placed spending at 5 per cent above the similar 1953 mark. It should be noted that the first quarter of 1953 was marked by unusual construction activity as a result of the warm weather. Many businessmen were encouraged by the projected rise in spending for new facilities.

Labor and Income
Total civilian employment in November was estimated at 61.9 million. This was less than 1 per cent below a year ago and a month ago. The decrease in employment occurred primarily in manufacturing industries as a result of frequent layoffs among automobile manufacturers. Unemployment in November was estimated at 1.4 million, up 22 per cent from the preceding month but unchanged from a year ago. This figure represents 2 per cent of the total civilian labor force.

Agricultural employment in November was estimated at 6.7 million as compared with 7.2 million in October and 6.8 million in the previous year. In eleven months of 1953, agricultural employment was below the comparable year-ago period in nine of the eleven months.

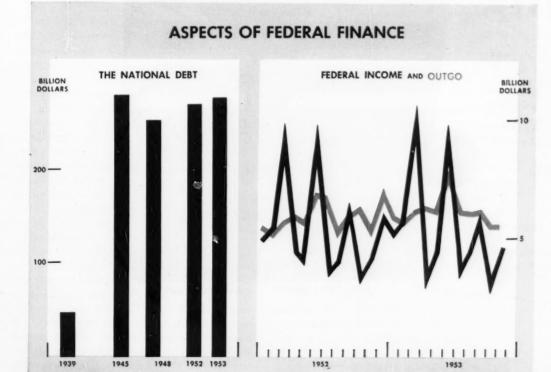
According to the Bureau of Labor Statistics, there was a slight easing of the labor supply from September to November. Of the 149 survey areas, 66 areas in November was classified as areas of moderate labor surplus. In September, the figure had been 64 areas and a year ago the number of areas in this category had been 60. However, there was no change either from a year ago or from September to November in the number of areas classified as having a substantial labor surplus.

Labor management disputes in November and early September were slightly more numerous than at the same time a year ago. The majority of these disputes were local in nature. However, the nationwide strike of container workers had serious effects on food processing industries. Citrus growers in Florida were among those most affected as the strike commenced at the time canning operations usually start. Orange prices dropped as the demand for oranges by the canneries fell.

Personal income in November dipped slightly from the October figures of \$287.3 billion. It was anticipated that the December figure would reach a new high, slightly above the July peak of \$287.5 billion. Wage and salary receipts were expected to top the July peak as most people looked forward to the largest Christmas season on record.

Personal income in October was less than 1 per cent above the preceding month and was 4 per cent above a year ago. Almost all classifica-

As Federal expenditures continued to exceed receipts with few exceptions, the national debt approached the current ceiling \$275 billion. It hardly seemed possible that it would be able to avoid raising the debt limit to the \$290 billion requested by the President last July. For the calendar year of 1953 the eleven month total of receipts was \$59.3 billion while expenditures amounted to \$67.2 billion. For the like 1952 period, receipts amounted to \$59.5 billion while Federal expenditures were placed at \$64.2 billion.





tions were unchanged from the preceding month with the exceptions of transfer payments which rose \$1 billion from the September level. The increase was occasioned largely by the payment of an insurance dividend to a number of World War I veterans. This dividend was paid in its entirety in October.

The average weekly earnings of all manufacturing workers rose 1 per cent from September to October and stood at \$71.73. This was 2 per cent above a year ago. The increase was a result of the lengthened workweek, 40.3 hours as compared with 39.9 hours in the preceding month. The workweek was 3 per cent below the similar 1952 period. Hourly earnings at \$1.78 were unchanged from a month ago and were 5 per cent above a year ago.

Agricultural income in October was unchanged from the preceding month and was 16 per cent below the preceding year. Net farm income in 1954 was forecast as being almost unchanged from the projected 1953 rate of \$12.5 billion. Cash receipts from farm marketings were forecast as showing little or no change from the 1953 total of \$31.2 billion while farm costs might rise slightly. Department of Agriculture economists expressed the opinion that prices received by farmers had stabilized and that further cuts in foreign demand were unlikely.

Barometers

Consumer spending in November rose and halted the decline that started in August. The preliminary Dun's Review Regional Trade Barometer in November stood at 131.5 (1947–1949—100). This was 4 per cent above a year ago and 2 per cent above a month ago. The barometer is adjusted for seasonal variation and the number of business days in the month.

The final United States barometer for October stood at 129.6, 1 per cent below a year ago and 2 per cent below a month ago. This marked the first time in which the barometer had fallen below the year-ago mark since January 1952. For the first 10 months of 1953, the United States barometer reflected an increase of 6 per cent over the like 1952 period.

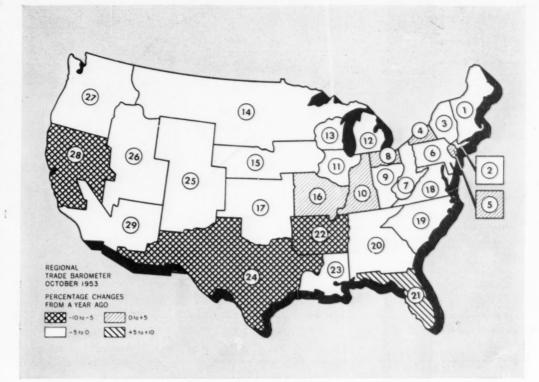
All but six of the 29 Regional Trade Barometers reflected decreases from the year-ago level. The mild weather which was so prevalent throughout the month deterred consumers from purchasing heavier and more expensive items of clothing as well as house furnishings and jewelry. Car volume continued to be above the similar 1952 period.

The Memphis region (2) reflected the greatest decrease from a year ago, 8 per cent. Unseasonable weather, in addition to lower income in this section, was mainly responsible for the decrease in the barometer.

The Florida region (21) reflected an increase of 6 per cent above a year ago. The economy of this region has been in continuous expansion and the prospects of even greater spending in this region were brightened by the fact that pre-

### Regional Trade Barometers

(1947-1949 = 100)



CCHANGE FROM

			10 menini	and a recover
		Oct.	Oct.	Sept.
		1953	1952	1953
	United States	129.6	-0.8	-1.5
1.	New England	113.0	-4.2	-3.6
2.		121.0	-3.7	-2.4
3.		130.3	-1.5	-1.9
4.	Buffalo & Rochester	134.1	+2.8	0.5
5.		127.1	+0.7	-3.6
6.		116.7	-4.7	+4.2
7.	Pittsburgh	129.2	-3.6	-7.0
8.	Cleveland	139.4	+2.1	+0.8
	Cincinnati & Columbus	128.4	-0.6	-1.5
10.	Indianapolis & Louisville	138.3	+4.5	+1.2
11.	Chicago	123.5	-2.1	-0.3
12.	Detroit	125.8	-1.0	+2.7
13.		124.9	-3.2	-0.9
14.	Minneapolis & St. Paul	112.2	-4.8	-1.8

			% CHANG	GE FROM
		Oct.	Oct.	Sept.
		1953	1952	1953
15.	Iowa & Nebraska	114.9	-2.8	-2.1
16.	St. Louis	124.3	+1.8	-2.8
17.	Kansas City	127.8	-2.5	+4.8
18.	Maryland & Virginia	126.3	-2.6	0.0
19.	North & South Carolina	130.6	-2.9	-1.8
20.	Atlanta & Birmingham	135.1	-0.5	-2.8
21.	Florida	148.7	+6.4	+4.1
22.	Memphis	117.5	-8.4	-2.7
23.	New Orleans	129.2	-1.2	-2.2
	Texas	141.6	-6.0	+3.9
25.	Denver	123.6	-1.7	+1.9
26.	Salt Lake City	118.1	-4.2	-1.9
27.	Portland & Seattle	119.0	-4.3	0.0
28.	San Francisco	121.0	-5.4	1.9
29.	Los Angeles	132.7	-2.7	-0.5

liminary indications pointed to a greater exodus to Florida this year than in any previous year.

Nine of the barometers were above the preceding month as the Kansas City region (17) reflected the largest increase, 5 per cent. Increased confidence among farmers was listed as a reason for the increase in spending.

The Pittsburgh region (7) reflected the greatest decrease from a month ago, 7 per cent. Scattered strikes and layoffs, in addition to a shorter workweek, resulted in a decline in income. Spending was curtailed for this reason by some of the workers.

The Florida region (21) had the highest barometer, 148.7. The Minneapolis and St. Paul region had the lowest barometer, 112.2. For the first ten months of 1953, the barometers for Los Angeles (29) and Detroit (12) reflected the greatest increases over a year ago. Total retail sales in November were estimated at \$14.0 billion. This was unchanged from a year ago and 7 per cent below a month ago. Unseasonable weather again hindered retail sales and the warmer temperatures deterred the purchase of soft goods. However, as the cold weather became a fixture in December, retail sales rose noticeably. It was estimated that December retail sales would be about 3 per cent above a year ago. Apparel sales were expected to reflect the greatest increases from both the previous year and previous month.

In November, durable goods volume reflected slightly greater increases over a year ago than did non-durable goods sales. Automobile sales were again moderately above the preceding year although the sales increases were far below the 20 to 30 per cent registered in the early part of 1953. Demand for used cars was steady

# Compass Point OF BUST

· Compass Point	Year	July	Aug.	Sept.	Oct.	Nov.
Employment, Agricultural	1951	7.9	7.7	7.5	7.7	7.0
Million persons	1952 1953	7.6 7.6	7.0 7.3	7.5 7.3	7.3 7.2	6.8
	1051		510	54.1	512	512
EMPLOYMENT, NON-AGRICULTURAL	1951 1952	54.6 54.6	54.9 55.4	54.1 54.7	54.2 54.6	54.3 55.5
Million persons	1953	55.5	56.1	55.0	55.1	55.3
Unemployment	1951	1.9	1.6	1.6	1.6	1.8
Million persons	1952	1.9	1.6	1.4	1.3	1.4
	1953	1.6	1.2	1.2	1.2	1.4
FEDERAL RECEIPTS	1951	2.6	3.6	6.2	2.6	3.5
. Billion dollars	1952 1953	3.3	4.1	6.6	3.1 2.7	4.2
	1223	3.3	1.0			
FEDERAL EXPENDITURES	1951	4.7	5.1	5.2	5.8	5.2
Billion dollars	1952	6.7	5.0	6.1	6.4	5.2
	1953	6.1	6.0	6.1	5.5	5.4
FARM INCOME	1951	2.6	2.9	3.3	4.2	3.7
Billion dollars	1952 1953	2.6	2.9	3.5	4.0 3.8	3.3
Consumer's Credit Outstanding	1951	20.0	20.3	20.5	20.6	20.9
Billion dollars	1952 1953	22.9 27.6	23.1 27.8	23.5 28.0	24.1 28.2	24.6 28.3
W F	1051	62.02	64.09	65.27	65.21	65.45
Weekly Earnings of Industrial Workers Dollars	1951 1952	63.92 65.44	64.08 67.23	65.37 69.63	65.21 70.38	70.28
ENDOSTRIAL WORKERS EDWARD	1953	71.51	71.69	71.02	71.73	71.02
Gross Hourly Earnings of	1951	1.59	1.59	1.61	1.61	1.62
INDUSTRIAL WORKERS Dollars	1952	1.64	1.66	1.69	1.70	1.71
	1953	1.77	1.77	1.78	1.78	1.78
AVERAGE WEEKLY HOURS OF	1951	40.2	40.3	40.6	49.5	40.4
INDUSTRIAL WORKERS Hours	1952	39.9	40.5	41.2	41.4	41.1
BELL CHARLES AND	1953	40.3	40.4	39.9	40.3	39.9
Manufacturers' Sales	1951	20.0	22.7	21.8	24.3	22.3
Billion dollars	1952	20.1	22.7	24.7	26.5	23.5
	1953	24.5	25.2	26.0	26.6	24.0
Wholesalers' Sales	1951	8.1	9.2	9.0	10.3	9.9
Billion dollars	1952 1953	8.6 8.9	8.7 8.7	9.5 9.4	10.4 9.3	9.5 9.1
RETAILERS' SALES	1951	12.4	13.3	13.1	13.9	13.4
Billion dollars	1952	13.4	13.4	13.6	14.8	14.0
Service the commence of the co	1953	14.4	14.2	14.2	15.1	14.0
ELECTRIC POWER PRODUCTION	1951	35.4	37.5	35.3	37.8	37.3
Billion kwh	1952 1953	37.0 43.9	39.8 44.5	38.8 42.9	40.5	39.4 42.7
BUILDING PERMITS, 120 CITIES  Million dollars	1951 1952	333 356	354 312	317 304	296 343	237 272
within dollars	1953	430	331	318	332	301
Commercial and Industrial	1951	665	678	620	6.1.2	587
FAILURES Number	1952	580	678 594	539	643	590
	1953	724	700	686	840	815
The state of the s						
LIABILITIES OF FAILURES	1951	21.1	26.4	26.6	29.7	176
Liabilities of Failures	1951 1952 1953	21.1 22.8 41.3	26.4 16.3 28.5	26.6 20.1	29.7 35.0	17.6 18.6

\*Adjusted for seasonal changes.

These figures bring up to date some of the series in "The Compass Points of Business," quarterly supplement to the November issue. The next supplement will appear in February.

# The Trend of BUSINESS

and used car prices were unchanged from the preceding month in contrast with the steady decline of the last year.

The call for appliances remained notably above a year ago. Among those appliances reflecting the greatest sales increases were driers and freezers. In the small goods line, the call for clock radios was notably stronger than at this time in the previous year.

Furniture volume was somewhat below the preceding year. Consumers continued to express preference for quality merchandise. While they were price-conscious, they appeared to have no hesitation in enlarging their dollar purchases or buying on the installment plan if the difference in quality was sufficient to warrant the additional expenditure.

Purchases of apparel in November were retarded by the mild weather and volume remained below a year ago. Volume in women's apparel reflected the most notable year-to-year decreases. Menswear sales were slightly below the similar 1952 period. Purchases of children's clothing were somewhat higher than at this time a year ago. Consumers continued to express preference for more casual clothing of blended fibers.

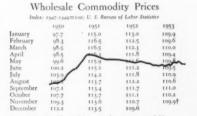
Food purchases were moderately lower than at the same time a year ago. Beef consumption was notably higher than in November 1952 while pork consumption was down somewhat. Sales of the traditional Thanksgiving items reached a new all-time high both in terms of units and dollars as the cost of the holiday market basket was almost unchanged from 1952.

Retail inventories in November reached a new all-time high and were close to \$24 billion. A large part of the increase was a result of sluggish sales of apparel; merchants' stocks of clothing remained markedly higher than at the same time a year ago. In addition, purchases in anticipation of Christmas had raised the inventory level. The November inventory figures are traditionally the peak for the year.

Wholesale sales in November

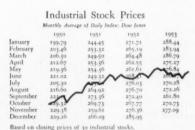
Industrial Production

# Consumers' Price Index



Employment

	1950	1951	1952	1953
January	56.9	59.0.	59-7	60.5
February	57.0	58.9	59.8	60.9
March	57.6	60.2	59-7	61.5
April	58.7	60.0	60.r	61.2
May	59-7	61.2	61.2	61.7
lune	61.5	61.8	62.6	63.2
July	61.2	60.5	62	Some
August	62	02.6	02.4	63.4
September	61.2	61.6	62.3	62.3
October	61.8	61.8	61.9	62.2
November	61.3	61.3	62.2	61.9
December	60.3	61.0	61.5	
Includes all o	ivilian work	ers.		





and



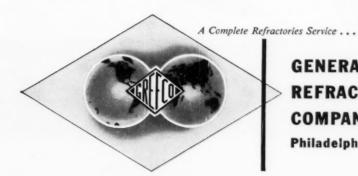
Products of fame

wherever there's flame...

Keeping flame on the job is the business of brick. Refractory brick to contain the flame and put it to work with efficiency and economy in the furnaces of industry.

Grefco refractory products have long been famed for doing this job reliably. Grefco brick, special shapes, mortars, plastics and castables to hold the heat and help spew out products for the service of industry.

If your operation requires flame, here's the name . . . Grefco!



**GENERAL** REFRACTORIES COMPANY Philadelphia

MODERN INDUSTRY

JANUARY 1954 • 81

### Duo-Guard Pushmatic . . . Now the STANDARD

# Only Duo-Guard provides

→ 1. FOR BRANCH CIRCUITS

### → 2. FOR LAMP and APPLIANCE CORDS

Duo-Guard Pushmatic circuit breakers give you double protection because they have separate thermal and magnetic elements. The Duo-Guard principle assures you that lamp and appliance cords, as well as branch circuits, are guarded from thermal and electrical faults.

No other breaker-at any price-has both:

Thermal Element (bimetal strip) protects branch circuit wiring and insulation, from Electri-Center panelboard to receptacle or outlet, from any kind of thermal overloads ... and prevents nuisance tripping.

Magnetic Element (multiple-turn solenoid) provides instantaneous protection for lamp and appliance cords, from receptacles or out-

lets to all properly connected electrical equipment. Also protects branch circuit wiring.

Now the standard BullDog breaker, Duo-Guard Pushmatic has all the famous BullDog exclusive features: simple-to-operate push-button control; day or night identification of "OFF" breaker; bolt-tight installation. No other breaker offers as much . . . yet many cost more.

Get the complete story on the world's most efficient circuit breaker. Write, today, for new, free Bulletin PM-365. BullDog Electric Products Company, Dept. MI-14, Detroit 32, Michigan.



THOROUGHBRED IN ELECTRICAL EQUIPMENT

Why Duo-Guard

Pushmatics

Provide

Double Protection

BULLDOG

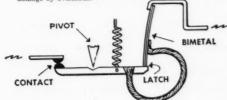
### **BullDog Breaker**

# double protection



### Simplified diagram of Thermal Element

As bimetal is heated by excess electric current, it bends and releases latch. Spring snaps latch upward, breaking contact. Branch circuit wiring, including insulation, from Electri-Center to receptacle or outlet is protected from damage by overloads.



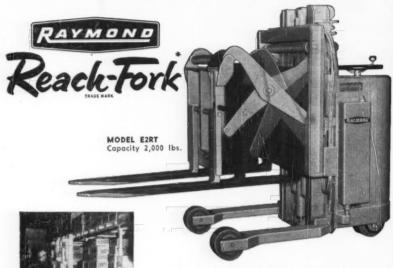
### Simplified diagram of Magnetic Element

Wound wire coil (solenoid) is energized by current. When short occurs, coil instantly activates metal plunger which breaks contact. BOTH BRANCH CIRCUIT WIRING AND LAMP AND APPLIANCE CORDS ARE PROTECTED FROM ELECTRICAL OVERLOADS AND SHORTS.

ELECTRIC PRODUCTS COMPANY

This is it . . . The truck with the

### "BOARDING HOUSE REACH"





2. Picks up load . .



3. Retracts load . .



4. Lowers load for travel!

Imagine it . . . a truck that permits close-quarter operation in every warehouse in America! Only the RAYMOND Reach-Fork performs this space-making miracle. Because only the Reach-Fork has "boarding-house reach." It's another great truck from the firm that 3 years ago made 6-ft. aisles a reality!

FORKS REACH RIGHT OUT to pick up or deposit your load . . . extend 24" and back in seconds. No need to change your existing rack set-up.

**HANDLES ANY SIZE PALLET . . .** one truck handles pallets of any size without any changes in the truck.

**STACKS PALLETS CLOSELY...** ideal for loading and unloading motor trucks and boxcars, or for rack storage use.

TIERS FROM 6-FT. AISLES in any warehouse thanks to Reach-Forks short length and patented\*\* off-set drive wheel with 200° turning arc.

**DOUBLES YOUR STORAGE** by trimming 4 to 6 ft. off conventional tiering truck aisles.



ELECTRIC INDUSTRIAL TRUCKS HYDRAULIC ELEVATING EQUIPMENT

\*PATENT PENDING \*\*PATENT NO. 2,564,002

MAIL THIS COUPON Learn how RAYMOND's Reach-Fork can produce dollar-and-space savings right in your own warehouse!

### The RAYMOND CORPORATION

4616 Madison St., Greene, N. Y.

Please send me Bulletin describing your new Reach-Fork Electric Tiering Truck.

NAME	TITLE
COMPANY	
STREET	

## The Trend of BUSINESS

were slightly below the level of a year ago. This marked the second consecutive month in which wholesale trade was below the 1952 mark. However, for the first eleven months of 1953, wholesale sales were 3 per cent higher than in 1952.

A large measure of the decrease in sales could be attributed to the fact that retailers of apparel were delaying additional purchases until their stocks had been lowered somewhat. Apparel wholesalers in October had reported a decrease of 20 per cent in sales from the previous year. Despite this sales decrease, their inventories were 4 per cent lower than at the same time in the previous year.

Food sales in October and November were below a year ago. This was a result of the substantial drop in prices, particularly meat. The volume of meat and meat products was 21 per cent below a year ago in October.

Among wholesalers reporting substantial decreases from a year ago were dealers in automotive supplies. Sales in October were 12 per cent below a year ago although the ten-month total reflected an increase of 15 per cent over 1952.

Wholesale inventories in November were fractionally above the October level and were 5 per cent

above the preceding year. Automotive stocks reflected the large increases from both a year ago and a month ago. Furniture stocks were also somewhat higher than at the same time in the preceding year.

Prices in November and early December reflected a moderate increase and by December 18 were 1 per cent above the October low. On that rate, Dun & Bradstreet Daily Commodity Index stood at 272.23 (1930–1932=100). This was 4 per cent below 1952.

While steel prices were generally firm during the month, there were some indications of uneasiness. Scrap prices again dipped and there were some shadings on the price of finished goods.

Copper prices were firm but many observers anticipated lower prices when Chilean copper was placed on the free market. The Chilean holding of 100,000 tons was the principle cause of difficulty in the negotiations between the United States and Chile. It was hoped that the United States would buy this holding at 30 cents a pound, add it to its stockpile, and thus remove it from circulation.

Lead prices were firm during the month but demand was dull. As

### Weekly Business Signposts

SELECTED BUSINESS INDICATORS	LATEST WEEK*	PREVIOUS WEEK	YEAR AGO	
STEEL INGOT PRODUCTION	190	196	224	
BITUMINOUS COAL MINED	843	821	995	
AUTOMOBILE PRODUCTION Thousand Cars and Trucks	86	123	97	
ELECTRIC POWER OUTPUT Ten Million K.W. Hours	866	858	814	
FREIGHT CARLOADINGS	652	622	721	
DEPARTMENT STORE SALES Index (1947–1949=100)	216	190	223	
Wholesale Prices	110	110	110	
BANK CLEARINGS	874	809	918	
MONEY IN CIRCULATION Hundred Million Dollars	309	308	303	
Business Failures	216	202	157	

\*Steel, automobile, clearing and failure data are for the third week of December; other figures are for the second week. Sources: American Iron and Steel Institute; U. S. Bureau of Mines; Automotive News; Edison Electric Institute; American Association of Railroads; Federal Reserve Board; U. S. Bureau of Labor Statistics; Dun & Bradstreet, Inc.

# The Trend of BUSINESS

the stocks remained steady, it was felt that a sudden rise in demand might boost prices. Zinc prices were also steady during the month; imports have fallen off and the pressure on domestic producers has been eased.

Prices of gasoline were cut further as the stocks continued to mount. As a result of the cuts at the wholesale level, price wars among retailers became more common. Among those areas engaged in price cutting were Connecticut and Oklahoma City.

Quotations on industrial alcohol were cut five cents by some producers as a result of lessened demand. Domestic producers also faced the possibility of competition from France which has been exploring the possibility of converting its wine to alcohol. It would be possible for the French product to undersell the domestic product by six to seven cents a gallon.

Prices received by farmers gave evidence of having firmed as they dipped only 1 point from October to November. According to the Bureau of Agricultural Economics, the index stood at 249 (1910–1914=100). This was 10 per cent below a year ago. The decrease was mainly seasonal. The parity ratio, reflecting the difference between prices paid and prices received by farmers, dipped one point to 90.

Following the new Government estimate of the cotton crop at 16.4 million bales, cotton prices eased somewhat. The new estimate was 2 per cent above the November estimate and placed this year's crop at a level of 8 per cent over 1952.

As cotton acreage allotments were announced, some growers pre-

DAILY WHOLESALE PRICE INDEX

The index is prepared on the basis of daily spot closing prices of 30 primary commodities (1930–1932=100).

WHOLESALE FOOD PRICE INDEX

The index is the sum total of the prices per pound
of 31 foods in general use. It is not a cost-of-living

Dec. 15, \$6.66 Dec. 16, \$6.11 High July 21...\$6.75 Dec. 8, 6.65 Dec. 9, 6.15 Low Feb. 3... 6.13 Dec. 1, 6.62 Dec. 2, 6.22 High Aug. 26, \$6.70 Nov. 17, 6.51 Nov. 18, 6.27 Low Dec. 16, 6.11

pared to increase their yield per acre. While the national average for acreage cuts was 27 per cent, Arizona and California acreage was slashed 52 per cent. The regions produce 1.3 bales per acre as compared with the national average of 0.6 bales per acre.

Livestock prices, with the exception of hogs, were almost unchanged from the preceding month. Hog prices rose 18 per cent from early November to early December and were 44 per cent above the previous year.

Finance The supply of money increased seasonally from November to December and was 2 per cent above the preceding year. The monthly increase was somewhat less than is usual at this time.

Bank debits in November amounted to \$141 billion. This was 6 per cent below October and 11 per cent above a year ago.

Consumer credit outstanding reached a new all time high by the end of October and stood at \$28.2 billion. This was less than 1 per cent above the preceding month and 2 per cent above a year ago.

At the time that the rise in credit was easing, there was considerable evidence of an easing of the interest rates on loans to business. While the prime rate was unchanged at 3.25 per cent, there was some evidence of shading on other loans.

In addition to an easing of rates on loans to business, there was some evidence that lower rates on mortgage money might be forthcoming. In a recent survey, over 60 per cent of the respondents declared that mortgage money was more readily available than three months ago.

### BANK CLEARINGS (Thousands of Dollars)

(T)	housands of L	Dollars)	
	N	ovember-	~ %
	1953	1952	Change
Total, 24 Cities	35,619,142	33,621,057	+5.8
New York	37,535,167	33,241,008	+12.9
Total 25 Cities	73,154,310	66,862,065	+9.4

### New Business Incorporations

Geographical	Oct	ober	Ten A	fonths
Divisions:	1953	1952	1953	1952
New England	496	509	5,732	4,912
Middle Atlantic	2,652	2,850	27,646	26,711
East North Cent	1,510	1,344	14,643	12,322
West North Cent	408	353	4,274	3,538
South Atlantic	1,248	1,202	12,955	11,409
East South Cent	239	256	2,530	2,268
West South Cent	437	510	5,309	5,145
Mountain	310	297	3,487	3,034
Pacific	967	909	9,785	8,463
Total U.S	8,267	8,223	86,361	77,804

# Solve your '54 cash problem RIGHT NOW

Whether your requirements are \$25,000 or Millions... Whether your need is for months or years

F there were times last year when your company was at an operating disadvantage because you lacked adequate cash working capital . . . or if the year ended with you and your associates having postponed desirable capital expenditures because you lacked positive assurance of continuing lines of credit . . . Commercial Credit would like to show you how these conditions can be remedied for the new year.

The proposal we make should provide a way to more cash than may have been available from your usual borrowing sources. These increased funds will be available on a continuing basis. They will not require any dilution of ownership or mortgaging of future profits.

COMMERCIAL CREDIT'S method is efficient and economical because you can expand or reduce the amount of cash used as your need varies. It is simple, direct, can be started quickly (funds usually available within 3 to 5 days from first contact). It has been tried and ac-

cepted by American business (our 1953 advances for working capital purposes alone amounted to over 600 Million Dollars). It is free of any preliminary costs and our one reasonable charge is a tax deductible expense.

1954 promises to be a challenging year. Commercial Credit would like to work with your company in making it a year of progress by providing funds for plant modernization, new product development, aggressive marketing programs, other constructive steps. For prompt action write, wire or phone the nearest Commercial Credit Corporation office listed below and say, "Send me information about the plan offered in Dun's Review and Modern Industry,"

BALTIMORE 1—200 W. Baltimore St. Los Angeles 14—722 S. Spring St. Chicago 6—222 W. Adams St. New York 17—100 E. 42nd St. San Francisco 6—112 Pine St.

A Service Available Through Subsidiaries of

### COMMERCIAL CREDIT COMPANY

Capital and Surplus Over \$135,000,000



Chance Vought F7U Cutlass

### Here's a simple equation:

### NO HIGH ALLOY STEEL = NO PLANE

Without stainless steel, super-high-temperature steels and special electrical alloys, it just wouldn't be possible to build, power and control a plane in the over-600-miles-per-hour class. That is our job: to develop and produce such metals . . . and if you have any problems that involve resisting corrosion, heat, wear and great stress, or require special magnetic properties, we're the people to see. Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.

### PIONEERING on the Horizons of Steel

# Allegheny Ludlum

Warehouse stocks of A-L Stainless carried by all Ryerson plants





THE ILL WIND OF BUSINESS FAILURE CAN BLOW

# Business Failures . . .

While casualties were more numerous and liabilities more sizable than a year ago, both still were below the pre-war levels. Small companies failed less often than the larger ones, continuing a recent tendency. Both failures and liabilities are tabulated and defined on page 88.

HILE they declined 3 per cent in November, business failures, at 815, were 38 per cent more numerous than a year ago when 590 businesses succumbed. This November's toll was exceeded in only one other November, that in 1949, since pre-war 1941.

Notwithstanding the decrease from a month ago in the number of failures, their rate in relation to the number of enterprises listed in the Dun & Bradstreet Reference Book reached a post-war high. Dun's Failure Index, which projects this rate to an annual basis, adjusting for seasonal variations, rose to 42 for each 10,000 listed concerns. This compares with 39 a month ago, and 30 a year ago. But it remained considerably below the pre-war rate of 60 which was reached in November 1940.

Little change appeared in the dollar volume of failures in November. Continuing at a high level, the liabilities totalled \$36,795,000. Casualties of all sizes were slightly fewer than in the preceding month, except for those in the \$25,000 to \$100,000 liability class where a mild upturn persisted.

Losses bulked almost twice as large as in November 1952; more concerns failed in all size groups than a year ago. The rates of increase ranged from 7 per cent among the small failures, those involving less than \$5,000, to 79 per cent among the exceptionally big failures, involving liabilities of \$100,000 or more.

Three-fifths of the businesses failing in November had been in operation five years or less. While 43 per cent were less than three years old, only 10 per cent of the unsuccessful enterprises had started in the current year.

While wholesaling and construction mortality increased mildly during the month, Casualties in other industry and trade groups dipped slightly below the October level. More wholesalers succumbed than in any month since early 1951.

One-half of the wholesale toll was concentrated in three trades: food, building materials, and machinery. While construction casualties were about evenly divided between general builders and subcontractors, the general builders had a more marked advance from the failure level in previous months.

In manufacturing, declines in failures in some lines, such as paper, printing, lumber, and leather, were offset by mild increases in the food and machinery industries; failures among textile and apparel manufacturers were the highest they had been since 1940.

Among the retailers, failures were usually slightly lower, or about at the same level as in the preceding month. The only marked decline occurred among eating and drinking places where the toll was the lowest in six months. Contrastingly, fatalities in furniture and home furnishings stores jumped to an all-time high. While there was a considerable increase in failures among both furniture dealers and radio, television, and appliance dealers between October and November, the latter group was principally responsible for the record peak.

Failures were more numerous than a year ago in all functions. In commercial service, the upturn from November, 1952 was slight, amounting to 8 per cent. But rises of one-third or more were not uncommon in other lines.

Construction casualties were half again as

large as last year. The upswing in manufacturing was almost as sharp, with notable rises in the textiles and apparel, and machinery industries.

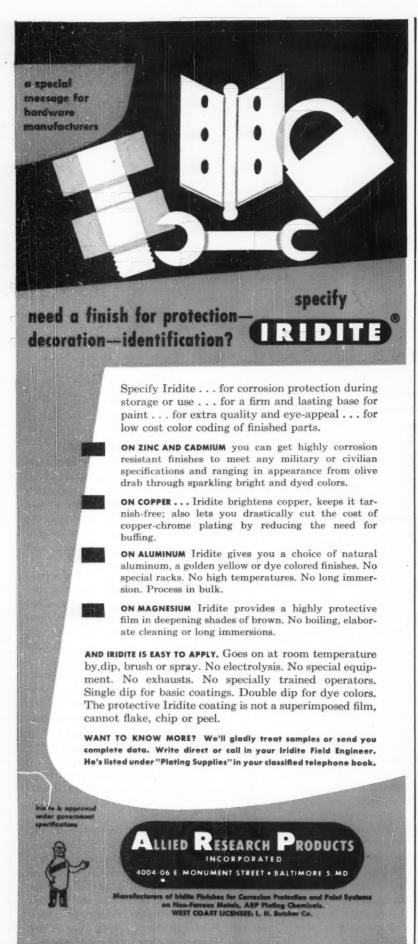
Retailing failures were higher than a year ago in all lines except building materials; the upturn from 1952 was unusually large in general merchandise, furniture, appliances, and automobiles.

The month's slight decline in failures was concentrated in four geographic regions: the New England, South Atlantic, East South Central and Pacific states. Increases in failures from a month ago were reported in the remaining five regions; a post-war high was reached in the Middle Atlantic region.

The New England region was the only exception to a general rise in failures from a year ago. Casualties in the West South Central and Mountain states were three times as numerous as a year ago, while the upsurge was close to 40 per cent in the Middle Atlantic, East North Central, and Pacific states.

Among the individual states, the rise from 1952 was most apparent in New York, Pennsylvania, Ohio, Wisconsin, Louisiana, Texas, Oklahoma, and California.

Non-metropolitan districts accounted for the dip from the previous month in November failures; the toll in the 25 largest cities was unchanged. Failures in New York City remained high. The increase in Philadelphia's failures was counterbalanced by the decline in the number of casualties in Los Angeles. Compared with a year ago, failures in the big cities were 28 per cent more numerous; they were up 47 per cent in the balance of the country.



Comparing the first eleven months of 1953 with the similar period a year ago, failures were higher in all of the major divisions of industry. The increases ranged from 6 per cent in the commercial service lines to 23 per cent in construction. The rise of 15 per cent for mining and manufacturing failures was about the same as the increase for business as a whole.

Retailing failures continued to constitute about half of the total, while mining and manufacturing companies were second in frequency. The largest absolute number of failures still occurred among retailers of food and liquor, and eating and drinking places, although in both of these categories, failures in the first eleven months of 1953 were slightly fewer than a year ago, contrasting with the increase in all other retail lines.

The retail lines with the largest eleven-months rate of increase in failures were the automotive group, with a rise of 74 per cent, and furniture and furnishings, up 67 per cent from a year ago.

The largest eleven-months percentage increase in failures for any

centage increase in	Lan	uics	101	any
FAILURES BY DIVIS				111.1
10 . 1. 1. 1. 1.	Nun	nber	Liab	inties
(Current liabilities in	11 M	onths	11 M	onths
millions of dollars)	1955	1952	1953	1952
MINING, MANUFACTURING.	1 664	1 450	125 1	96.5
MINING, MANUFACTURING.	1.004	1.450	133.1	20.3
Mining-Coal, Oil, Misc	38	39	2.6	3.4
Food and Kindred Products	148	154	2.6 17.5	12.1
Textile Products, Apparel	420	348	27.8	18.4
Lumber, Lumber Products.	255	230		11.5
Paper, Printing, Publishing.	100	96	10.4	4.9
Chamicals Allied Products	57	39	7.1	3.9
Chemicals, Allied Products.	95	80	7.1	3.9
Leather, Leather Products.				
Stone, Clay, Glass Products.	35	37	1.8	1.8
Iron, Steel, and Products	56	46		
Machinery	143	119	21.2	18.8
Transportation Equipment.	52	42	5.7	2.3
Miscellaneous	265	220	10.5	11.8
WHOLESALE TRADE	848	703	48.0	39.0
Food and Farm Products	241	211	15.6	10.3
Apparel	36	45	1.2	1.5
Dry Coods	39	34	2.2	1.4
Dry Goods Lumber, Bldg Mats, Hdwre	93	54	8.6	2.9
Lumber, Bidg Mats, Fidwre	31			2.9
Chemicals and Drugs		19	1.3	0.9
Motor Vehicles, Equipment		28	1.1	1.0
Miscellaneous	373	312	18.0	21.0
RETAIL TRADE	3.999	3.545	107.5	68.5
Food and Liquor	812	851	14.4	12.4
	139	123	4.1	2.8
General Merchandise				10.1
Apparel and Accessories	546	533	14.0	10.1
Furniture, Furnishings	642	384	24.5	9.4
Lumber, Bldg Mats, Hdwre	200	170	6.4	4.7
Automotive Group	479	276	16.1	5.6
Eating, Drinking Places	727	770	16.3	15.3
Drug Stores	107	103	3.9	1.9
Miscellaneous	347	335	3.9 7.9	6.4
Construction	935	762	39.2	31.1
General Bldg. Contractors.	354	286	19.6	17.4
Building Sub-contractors	530	451	14.5	12.6
Other Contractors	51	25	5.1	1.1
COMMERCIAL SERVICE	603	568	20.6	24.8 =
D	107	170	75	147
Pass, and Freight Transport.	197	170	7.5	14.7
Misc. Public Services	24	31		1.8
Hotels	24	26	4.1	1.3
Hotels Cleaning, Dyeing, Repairs.	67	79		1.1
Laundries	33	37	0.9	0.8
Undertakers	4	10	0.1	0.3
Undertakers	34	50		0.9
Business, Repair Service	220	165	4.1	4.0
TOTAL UNITED STATES	8,049	7,028	350.4	259.9

Liabilities do not necessarily add to totals because of

line of business occurred among construction contractors other than general building contractors and building sub-contractors. Here casualties more than doubled, rising from 25 a year ago to 51 for the first eleven months of 1953.

The largest percentage decrease occurred among undertakers, where the toll for the first eleven months of 1953, at four failures, was less than half of last year's ten.

Of the 39 separate lines of business tabulated, some 69 per cent had more failures in the first eleven months of 1953 than a year ago; the remainder had slightly fewer casualties

The increase in the liabilities involved in failures for the first eleven months of 1953 was usually greater, percentagewise, than the increase in failures, indicating an expansion in casualties among the larger businesses.

The commercial service industry was the only exception to this tendency; here liabilities declined 17 per cent in the face of a 6 per cent increase in the eleven-months total for failures. The service industry largely responsible for this decrease in liabilities was passenger and freight transportation.

The most marked increase in larger failures occurred in retail trade, where the number of failures rose 13 per cent above a year ago in the first eleven months of this year, while liabilities were 57 per cent higher. Much of this liability increase was attributable to the casualties among furniture and furnishings stores.

THE FA	ILURE R	ECORD		
	Nov. 1953	Oct. 1953	Nov. 1952	P.C. Chge†
Dun's Failure Index Unadjusted Adjusted, seasonally	41.7 41.7	36.2 38.9	30.3 30.3	
NUMBER OF FAILURES	815	840	590	+38
NUMBER BY SIZE OF DE	EBT			
Under \$5,000 \$5,000-\$25,000 \$25,000-\$100,000 \$100,000 and over	112 405 228 70	132 412 222 74	105 298 148 39	+36 +54
Number by Industry Groups				
Manufacturing Wholesale Trade Retail Trade Construction Commercial Service	175 88 389 97 66	188 84 404 89 75	121 .66 280 62 61	+39
Current	(LIABI \$36,795 36,996		\$18,757	sands) +96 +96

\*Apparent annual failures per 10,000 listed enter-prises, formerly called Dun's Insolvency Index. Per cent change, November 1953 from November 1952.

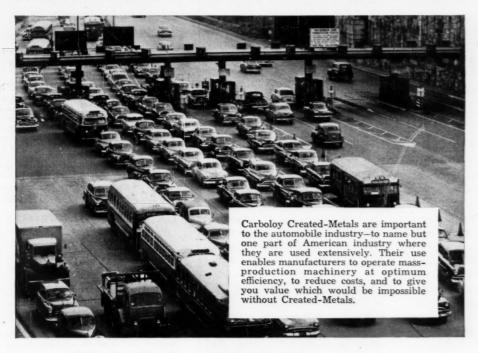
Per cent change, November 1953 from November 1952.

Business Failurbes include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving upphial obligations; were involved in count actions such as receivership, reorganizations, or arrangement; or voluntarily compromised with creditors out of control.

Current Liabilities, as used in the Failure Record, have a special meaning; they include all accounts and notes payable and all obligations whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Off-setting assets are not taken into account.

# Carboloy Created-Metals are answering many design, production and cost problems

Here are typical case histories — representative of the wide range of benefits Carboloy Created-Metals are bringing to industry



In production, Carboloy Created-Metals are helping cut costs and increase output. In product design, Carboloy Created-Metals are improving performance and durability — ranging from pins to automobiles. Your problem may involve radically new factors. Or, it may be similar to problems Created-Metals have solved during the last 25 years. Whatever it may be, Carboloy engineers are ready to provide highly specialized assistance, through the Carboloy Engineering Appraisal Service. Write for details of how this service can assist you to benefit fully from applications of Created-Metals.

# CREATED-METALS

"Carboloy" is the registered trademark for the products of the Carboloy Department of General Electric Company



This Brochure can help you — send for it, today.

Learn how many industries are applying Created-Metals to improve design, increase production, lower costs. Write on your company letterhead, for this brochure—"Changing the Shape of the Future with Carboloy Created-Metals." Carboloy Department of General Electric Company, 11169 E. 8 Mile Blvd., Detroit 32, Michigan.



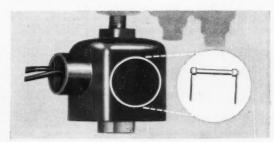
CEMENTED CARBIDES — New Carboloy Cemented Carbide Grade 370 increases production up to 30% on heavyduty steel-cutting jobs . . . cuts more steel per minute, with longer tool life, than any other carbide. On this interrupted cut, on high-carbon steel, at 80 F.P.M., with a .024" feed and a ½" depth of cut, tool life was increased 50%.



PERMANENT MAGNETS—Tiny Alnico Magnets, in this alltransistor hearing aid, replaced electromagnets, eliminated an input transformer, and failures due to humidity. Permanent magnets can improve performance, reduce size and weight in controls, motors, instruments, switches.



**HEVIMET** – In the boring bar shown, a piece of Hevimet "floats" in the bar's free end, eliminates vibration chatter. 50% heavier than lead, Hevimet provides maximum weight in minimum space. Also used as a radioactive shield.



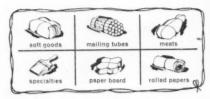
**THERMISTORS** – Most thermally sensitive resistor material – provide greater sensitivity, simplicity, dependability, in small size, for automatic temperature control. In this oil-burner control, thermistors ended smoky starts, puff-back and flutter.

SETTING THE PACE FOR INDUSTRIAL PROGRESS



### BUNN machine ties packages in 1½ seconds!

With a Bunn Package Tying Machine, you tie packages of different sizes and shapes as much as 10 times faster than hand tying! And the machine adjusts itself automatically to successive variations in package size and shape! Machineprecise wrapping and knotting saves thousands of feet of twine every year. With 5 minutes training, anyone can operate. Send coupon TODAY for details!



BUNK the original package thing machine

B. H. Bunn Co., Dept. DR-1 7605 Vincennes Ave., Chicago 20, III.

B. H. Dept.	tree, hly-illust ll bookle BUNN (	t.		
Please how B	rush me	e Booklet	200 de	escribing
NAME_				
COMPA	NYY			
ADDRES	ss			

### OBSERVATIONS ON FRANCE

Continued from page 53

mestic management, shift present emphasis somewhat from job security to unemployment insurance, advance the age of retirement, simplify welfare benefits, shift extensively from indirect to direct taxes in order to sharpen social consciousness of costs, revise the present incidence of taxes and collect them, ease off rent control, cut the administrative expenses of government, reduce the present deficit, move with other nations toward a system of multilateral payments, begin relaxing exchange restrictions\* subject to the right to limit imports in case of excessive currency deterioration (but discontinue quantitative restrictions), devalue the franc.

This is wishing for the moon. Injury would be suffered by hundreds of thousands of concerns that had put down their roots in the old soil and could not stand the shock of transplanting. The screams would serve for twice the injury. Laborers whose wages plus benefits barely bought bread and wine would have to do without bread. Business that had rocked along in easy-going fashion would not know how to adjust to low-cost, mass-market competition and many would wilt and die. Abrupt curtailment of Government spending would bring additional unemployment. If the Government withdrew its subsidies to business, where could business turn in the absence of a money market; and how could such a market be created, save by rank inflation, in the absence of savings and the penchant for hoarding? Relaxation of exchange restrictions would touch off a buying spree in imported goods; to counter this, import restrictions

\*A flexible exchange rate is actually much more potent than tariff eductions in the United States and other vital markets in enlarging European exports. Import duties affect only a small share of potential trade, and some assurance against countervailing actions by the United States in the event of genuine cost reductions by European producers and governments is the real need. (Illustrating merely one aspect, a Frenchman once told the writer that the currency reform imposed by the United States on Germany was much too good for France's good.) This kind of assurance would run against such threats to expanding US imports as peril point provisions in the Reciprocal Trade Agreements Act, the Buy America Act, and shipping restrictions. The Torquay reductions, proclaimed the largest yet, affected only ½ per cent of our inbound commerce. Flexible exchange affects competition across the board, including European sales to third countries. Europe craves some sign that in the event the nations of that continent take drastic steps, necessarily at great political risk, to cut costs and stabilize their accounts with the world, the United States will not undermine their governments through retaliatory action. It has frequently been suggested that by way of encouragement the Congress pass some form of resolution, perhaps in the Full Employment Act, conveying recognition of the effect of fluctuations in the American economy on the ability of the rest of the world to prosper, Periodical statements to the same effect by the President and Cabinet members would help foreign governments in their uphill domestic battles to clean house.

might have to be tightened rather than eased. Devaluation of the franc would assist exports, but at the cost of more inflation because of the resulting fall in the supply of domestic goods and rise in the cost of imports from countries that did not likewise devalue. In fact, even more flexible countries than France are dreading to commit themselves to a system of free exchanges in a world of multilateral payments. After all had been free for a time, they might find a new equilibrium with general benefits, but in the process they might crash, particularly if depression and inventory adjustments took place in the United States. They will not act until the risks are measurable, which makes both planning and forecasting very uncertain.

It will be noticed that many of these disasters would in the end be self-compensating. Reduction of take-home pay because of the thinning of social benefits would turn



GENDREAU PHOTOGRAPH

into a higher standard of living because of lower prices and the ultimate ability of progressive employers to raise wages. In one breath the rise in import prices was deplored as inflationary and hurtful to low-income classes, and in the next the Government was seen obliged to limit imports by force of law; but they would not be the same imports bought by the same people, and the cost of imports would not rise commensurately with the amount of devaluation anyway.

This is the sort of thing that is all right after it happens (or so it would be hoped), but even in a system of mutually re-enforcing evils such as the present one the immediate emphasis has to be put on their mutuality and on the low-grade equilibrium it brings about. An instantaneous shift from one entire combination of policies to an-



# REDUCED BY THE USE OF KIL-KLATTER PADS UNDER ALL TYPEWRITERS

If your office is noisier than it should be, make this simple test today.

Place a Kil-Klatter pad under each typewriter. Then notice how disturbing and distracting noises caused by typing are reduced. See how errors and typing mistakes caused by noise fatigue are reduced—how office efficiency steps up.

kil-Klatter pads absorb the shock and deaden the noise of typing—keeping the desk from becoming a sounding board. Kil-Klatter's scientific design literally "soaks up" typewriter disturbances—keeps down the noise of typing all day long.



- Made of genuine long life OZITE felt
- Dent-proof top and skid-proof bottom
- Fits many other office machines, too

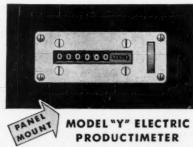
\$ 25 at your stationer or office supply dealer

"The answer to a quieter office may be under your typewriter"

AMERICAN HAIR & FELT CO.

Dept. D311, Merchandise Mart
Chicago 54, III.

KIL-KLATTER



ON MACHINE OR CONTROL CENTER

The flexibility of the Model "Y" Electric Productimeter offers versatility of application to suit individual needs. Panel mounts grouped at control center give immediate production figures of many machines in different plant departments. Operates accurately over wide current fluctuations.



Hi-Speed — Compact — Accurate — Durable — Totally Enclosed with maximum readability. Adaptable to panel or base mounting.

### DURANT MANUFACTURING CO.

1948 N. Buffum St., Milwaukee 1, Wis. 148 Orange St., Providence 3, R. I. Representatives in Principal Cities

PRODUCTIMETERS
SINCE 1879 Count Everything



other is difficult to visualize. The effects would never come forward evenly and, for a time, this would mean hardship for some and bonanzas for others. For numerous activities to break out of even a low-level equilibrium at the same time is to threaten chaos; counsel to that end would not likely be heeded.

And now we are in trouble because, to avoid discrimination in the long run and fundamentally, some sort of package is needed even though the effects of complementary measures cannot be expected to develop evenly. Some of the more extravagant forms of job-protection and middle-age retirement might, for example, be modified at the same time exchange controls relaxed, profits are forced down, and the franc devalued. Internal activity would be stimulated by the latter measures, exports increased, and the currency relieved from outside pressure and any drop in free market imports cushioned through transitional means. The most obvious and frequently urged palliative-devaluation of the franc-should not be applied by itself. With the system left in disorder, the French are very

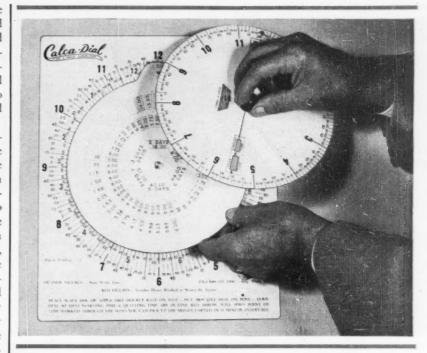


GENDREAU PHOTOGRAPI

likely to take up the play thus given them through new inflation. Within the narrower limits set by the pressure of world monetary institutions the same objection would apply to revaluation of gold by the United States.

All the men accepting responsibility for government in France over the past few years have been trying hard to go to the heart of the nation's difficulties and therefore, by definition, have made themselves expendable. Differences in emphasis rather than in grasp of essentials were influenced in each case by the immediate reasons for a predecessor's overthrow. A few illustrations will help make the point.

M. Mayer struck at inflation by repaying balances to the Bank of France and limiting investment ex-







C. FAIR BROOKS, President of Brooks Transportation Co., Richmond motor line employing 800, says:

"CALCA-DIAL enables us to figure both time worked and wages earned in one-third the former time."

Note: Hand-made model was first tested at Brooks, and worked so well other handmade models were used in all terminals until manufactured models were ready. • The Time-Wage Computer that's simple and quick to operate.

 Consists of plastic base, on which wage discs are placed. One turn of the dial permits user to find the length of time worked and wages earned—in straight time, overtime, or both. Daily basis up to six days also instantly computed.

Wage discs are interchangeable, and applicable disc can be inserted quickly by lifting off the movable dial. Extra discs of standard wage rates supplied with each unit, and blank discs are available for writing in unusual hourly rates.

• CALCA-DIAL comes complete with 20 wage discs. Each side is different, making 40 different rates. Discs printed with standard wage rates ranging from \$.75 to \$1.50 in 1c intervals; from \$1.50 to \$2.00 in 2c intervals, and from \$2.00 to \$3.00 in 5c intervals. For unusual wage scales, blank discs are available to be filled out with applicable rates.

Sold on Money Back Guarantee Price \$19.75 Complete With 20 Wage Discs

In Ordering—Specify Your Wage Rates

See Your Dealer or Write: EVANS SPECIALTY CO., Inc.

410 N. Munford St. - Richmond 20, Va.

Evans GATHERING RACKS and Finger 7th DESK FILE



BURGESS-MANNING COMPANY

745 East Park Avenue, Libertyville, Illinois



BELTRACTION weatherproofs, oiloofs and waterproofs all kinds belts and prolongs belt life.

BELTRACTION COMPANY

1811 W. Winona St. Chicago 40, III.

FOR ALL TYPES OF BELTS . V-TYPE, FLAT OR ROUND

pansion. M. Edgar Faure tried to lessen the gap between income and outgo by increasing taxes and fell over that issue, marking by his fall the near chaos of February 1952.

### Pinay to Laniel

M. Antoine Pinay's approach was perhaps the boldest. Although he skirted the tax question, he endeavored to persuade trade and industry to reduce prices as much as 10 to 15 per cent with the object of lowering living costs and averting new wage demands; to lessen tax evasion through both sterner collection measures and offers of amnesty for past delinquencies; and to pull gold out of hoards now aggregating perhaps \$5 billion through a loan conferring limited tax exemption and pledging redemption of principal in gold. A part of the theory here was to finance productive investments of the Government out of public savings rather than taxation or deficits. Premier Laniel has recently attempted to modify some forms of job protection and middleage retirement and is pressing on the farm program.

No shift in position or emphasis can make the job easy. A perhaps insufficiently noted handicap is that the normally stabilizing middle class has been decimated by inflation. Extremes of wealth and income distribution, regressive taxes, the rationalizations of nationalism and neutralism, the strength and aggressiveness of pressure groups, obsessions over "full" employment, all interact to make the path for reform very rough indeed-and particularly rough for impersonal money orthodoxy.

By all odds the package should be as large as calculated risks and the public sense of urgency will permit. Indeed the more complete the package, the more tense the drama through which French enthusiasm might be kindled. France is capable of such responses.

It was thus that she rallied under Premier Poincare's cabinet of former Premiers (National Union) in 1926 when the budget was balanced, interest rates reduced, industry revived and modernized, the franc restored to a gold basis, and reserves of the Bank of France replenished. It happened again in 1933 when highly respected Premier Doumergue was permitted to rule virtually by decree and, together

NATIONAL REQUIREMENTS SERVICE

### AIR FORCE BUSINESS

**SPECIALISTS** 

If you are engaged in Air Force work or are thinking of expanding your operations into this field, you can profitably utilize our staff of Air Force business specialists. Reputable professional services are available to you in:

- √ SALES PROGRAMS
- √ SUBCONTRACT WORK
- √ CONTRACT NEGOTIATION
- √ CONTRACTUAL LIAISON
- √ ENGINEERING LIAISON

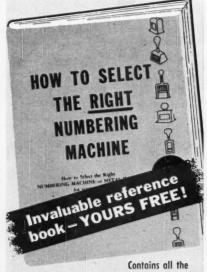
Our offices are centrally located in Dayton adjacent to Wright Field, the "Procurement Center" of the Air Force. Services extend to manufacturers and engineering and research organizations throughout the United States.

Your Inquiries are invited

NATIONAL REQUIREMENTS SERVICE

HULMAN BUILDING

DAYTON 2, OHIO



information you need to select exactly the right Hand Numbering Machine or Metal Dater for any job, plus scores of time-saving ideas. Includes uses, figure sizes, performance specifications for all standard methods. Supply limited. Write for your free copy.

WM. A. FORCE 216 NICHOLS AVENUE, BROOKLYN with other means, balanced the budget by dismissing more than 85,000 civil servants. As recently as 1947 France was counted out by many observers but managed a fairly respectable recovery.

Perhaps, after centuries of class separatism, boldness is the only course that will pay off. Through it enough citizens might be brought to feel, in spite of temporary disadvantage to most, that an effort demanding greatness was being made to restore France to the heights.

Epilogue: Although her ailments suggest those of old age, France can still strike a pose of l'enfant terrible without appearing ridiculous. Her success in this charlatanism can be attributed largely to the persistence of widespread American affection for France and respect for her very special culture. From the Louvre and Cathedrals to the Flea Market and a capably commercialized repute for having found a way to invest sin with charm, she never wants for tourist. Last summer she drove them out at the height of the season through strikes over an artificially isolated fraction of her problem, but they will be back. Visitors may look upon the inscription on the gates of the Versailles Palace-"To All the Glories of France"with a feeling that in the absence of a future she does well to make so much of the past, yet still find comfort in the unpredictability of France. In dark days the volatility of her people can be good because the only possible direction for the next reversal would seemingly be toward light. And inasmuch as her problems are rooted in temperament rather than economic handicaps, why not hope? Indeed, after 1947 France did confound many of her critics by pulling out of what then too seemed like a bottomless quagmire.

In a tiny Parisian restaurant one night the writer witnessed a ferocious encounter between a squat elderly gentlemen in a derby hat and an obviously dear friend otherwise distinguished by a very bulbous nose. Suddenly an altercation arose. During its course Derby jumped madly up and down, while Bulb-Nose swayed and gesticulated in excitement. Voices were raised and eyes blazed. Bulb-Nose bashed Derby's hat over his ears. As the writer and his family were seated close by, apprehension was warranted. At the very least a flashing heel might at any moment land on bystanders, and Communism must be involved. Of a sudden the shouting ended. The antagonists began laughing uproariously while the bartender, smiling his pleasure at the happy outcome, leaned over his pediment and placed an affectionate hand on the shoulder of each. The few Americans and British present breathed a sigh of relief, and I asked my daughter, a linguist of sorts, what the fiery and intense argument had been about. "Oh," she replied, "they were arguing over the merits of Calvados (a French brandy)." But it could have been the crazyquilt economics of the day, and, multiplied over a few million other wine glasses, presage a revulsion that would permit some lucky government to make basic reforms. The French at least know that they are sinking without need.

THE END





# it's yours!

# Emerson-Electric's Fan Catalog for '54

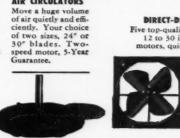
Here's the catalog you will need... Emerson-Electric's 1954 catalog showing the most complete line of fans in America! You'll find just the right types... with just the right features that make these fans preferred in offices, stores, institutions, hospitals, hotels and factories. Be sure to get your free copy. Write for Catalog No. 754.

THE EMERSON ELECTRIC MFG. CO.

St. Louis 21, Mo.

DIRECT-DRIVE EXHAUST FANS Five top-quality models, blade sizes 12 to 30 inches. Fully-enclosed motors, quiet overlapping blades.





AIR CIRCULATORS

BELT-DRIVE EXHAUST FANS
Long-life, slow-speed models in 24-,
30-, 42- and 48-inch sizes, exhausting
up to 19, 350 C.F.M.

EMERSON EMINSON ELECTRIC
FANS . MOTORS APPLIANCES

FREE FAN CATALOG

THE EMERSON ELECTRIC MFG. CO.

Send us your illustrated



The Trackmobile goes right to the job on its road wheels—changes to track wheels in 30 seconds. It's now ready to switch, spot or haul.

For hundreds of plants the sensational Whiting Trackmobile has revolutionized freight car handling. Traffic men claim it is far more efficient than the ordinary switch engine because it travels on track or road and can't be "bottled up." It handles a variety of jobs on different tracks in a matter of minutes. The Trackmobile is low in original cost, low in operating cost. It speeds up freight car movement—reduces demurrage—increases production!

Write today for "Reports From The Field"—a booklet containing practical information for simplifying freight car handling.

### WHITING CORPORATION

15661 Lathrop Avenue, Harvey, Illinois

Sales Offices and Distributors throughout the world.

Other Whiting products that speed handling and reduce cost



Trambeam Overhead



Electric



Traveling Crane

Whiting Corporation also manufactures Railroad and Aviation Equipment, Swenson Chemical Processing Equipment and Metal-Working Machinery.

# THE RICTORAPIE BOOKSHELL AND SECULIAR BOOKSHELL BOOKSHEL

### A World At Work

Originally created in six days, the world has been recreated in six years by economist W. S. Woytinsky, in collaboration with his wife, and placed between the covers of the formidable volume, World Population and Production. Unlike many economists who limit their appetite for economic data to one industry, trend, or nation, the Woytinskys have taken the world as their oyster and served it appetizingly on the half shell. The other half, concerned with international trade, transportation, and political forms, is scheduled to appear in a second volume this year.

Proceeding from the premise that half the world does not know how the other half lives, a



NEW WORLD ON THE WAY?

monumental understatement, the authors of this tremendous tome—it is nearly three inches thick—have accomplished much in translating the concept of "one world" into economic terms. Financed jointly by the Rockefeller Foundation

and the Twentieth Century Fund, the volume promises to approach the popularity of the Fund's earlier 1947 publication, *America's Needs and Resources*.

In the Woytinsky work, "world needs and resources" is but one of the five sections which include: man and his environment, agriculture, energy and mining, and manufactures, each of which is presented in impressive detail, buttressed with the best available data. Research workers should be intrigued by the many estimates of various data, which are fitfully filtered in passing through the curtains of iron and other materials which divide the world.

Not merely a bland reflection in prose of broad data, this study presents in detail the organization of various industries, with the names of actual companies and descriptions of cartels, marketing agreements, and the like. In addition, the histories and future outlook of each industry, on a world scale, are skilfully sketched from the sometimes meager data scattered through a multitude of sources.

More than 300 maps and charts and 500 tables augment its value as a basic reference manual. If you would learn the baking process used in Egypt in 1300 B.C., as well as the heady history of beer, or the name of the main chemical producer in Switzerland, this is the book for you.

After sifting the many grains of data, the authors arrive at a pleasantly non-Malthusian conclusion: population will probably become stabilized within 150 years at a level which the earth's resources can well support. This substantial study offers a vivid portrait of a world in transition as the revolutionary force of technological change sweeps across the furrowed face of the world.

The Twentieth Century Fund, New York, 1,268 pages, \$12.

### No Depression

Whether a recession should be described as a healthy adjustment, a dose of deflation, a breathcatching pause, or some other euphemism remains a matter of conjecture. Much less uncertain are the nature and reality of a serious depression, about which there is little doubt. That the American people, many of whom have had no adult experience with a depression, will never



DEVANEY PHOTOGRAP

PRICE TAGS ON SCIENTISTS

again suffer such a catastrophe is the conclusion of the new book by the well-known economist, A. W. Zelomek. Encouragingly entitled *No Major Depression in Our Lifetime*, the book presents a clear, concise catalog of the forces in the economy which the author insists, without hedging or equivocation, will prevent another debacle.

However, the author, a successful adviser to business for three decades, is not such a Pollyanna as to deny the probability of recessions such as the one in 1949. In fact, at the time the book was written, the author donned his oracular robes and prophesied that by the time the book appeared a recession would be under way. However, he has little doubt that joblessness will remain below 7 million, the point at which he

### WHY SO MANY COMPANIES ARE NO LONGER USING LABELS OR BRUSH-STENCIL



### New WEBER SYSTEM for addressing shipping containers does job faster, more accurately, at much less cost

Pictured above is a system that is now accepted as the most efficient method of addressing or marking containers. Time and cost studies taken by present users prove its superiority in speed and economy over less modern methods. It's the Weber Direct-To-Container System.

The cartons have been pre-printed ith a label frame by the carton manufacturer. The ship-to address is printed inside the frames at the rate of 40 to 50 cartons per minute with a Weber RJ-1 Hand Printer. (Carrier associations enthusiastically

approve the sharp, waterproof, fade-

proof print).

The RJ-1 prints from an inexpensive stencil that can be typed individually or with bill-of-lading or invoice forms as described below. It has a reservoir that holds enough ink for 7,500 to 10,000 prints. Can be supplied with one or two counters

for count control.

Find out more about this efficient system for addressing and marking your shipping containers. Send for the folder offered in the coupon.

### SHIPPING PAPERWORK SIMPLIFIED



Weber Label and Marking Systems liv.—Weber Addressing Machine Co Mount Prospect, Illinois



Typist sticks Tab-On Stencil to form over the "Ship To" area. In one typing, form and stencil are prepared with ship-to address. Stencil then goes to shipping.



Continuous-form, mar-ginal punched stencils are also available. Can be cut on automatic tabulating equipment, electric or manual typewriters.

MAIL THIS COUPON for more information	on the We	eber Direct-To-	Container System
COMPANY			
INDIVIDUAL		TITLE	
ADDRESS			
CITY	ZONE	STATE	
WEBER LABEL AND MARKING SYSTEMS .	Dept. DR	-4 • MI	Prospect, Illinois

describes a depression as beginning to emerge.

Besides offering detailed advice to business men for the months ahead, the book should also help shorten any slowdown for it is a refreshing tonic, so necessary when business confidence is itself a factor in preventing the not irreversible slide from pause into adjustment into recession into depression.

International Statistical Bureau, Inc., 350 Fifth Ave., New York 1, N. Y., 72 pages, \$1.

### Research Revelations

More research will undoubtedly be the immediate result of the publication of Research Operations in Industry, edited by David B. Hertz. For here are presented more than two dozen papers delivered by research executives at the Third Annual Conference on Industrial Research at Columbia University.

Analyzed almost as searchingly as a new plastic were such intangibles as the basic philosophy of research, the design of special projects, cost analysis, budget preparation, facilities, characteristics and training of research workers, transition to production, and communications.

A more systematic study of industrial research was the result of the special survey made last year by the Department of Defense. Based on detailed questionnaires from nearly 2,000 companies which perform about 85 per cent of all industrial research, the study, Scientific Research and Development in American Industry, provides a wealth of detailed data on research manpower and costs.

Since the resurgence of research during the past few years, largely from the impetus of the rearmament program, some management people have found themselves involved in a field without reliable guideposts to aid their search. Erected by this study were such guideposts as the average cost per research worker, the number of supporting workers per scientist, the ratio to sales, turnover, and other significant signs, each provided for dozens of particular industries. Also brought out in the study is the fact that nearly one-half of all industrial research is directly financed by the Federal Government, which easily explains the study's raison d'etre.

Columbia University Press, New York, 453 pages, \$8.50.

Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., 106 pages, \$.50, BLS Bulletin No. 1148.

### Why Workers Work

To be unversed in the jargon of the social scientist is a near fatal failing for management people concerned with human relations in industry to-day. Since the epochal experiments of Elton Mayo at Western Electric a few decades ago, the world of industry has witnessed a steady invasion by inquisitive sociologists, psychologists, and even anthropologists, followed by an impressive, if sometimes erudite, stream of reports, studies, and surveys, many of which rarely appear outside scholarly journals.

Virtually all of the important handiwork of the academicians has been gathered between the covers of the new volume, Motivation and Morale in Industry by Morris S. Viteles, a professor of psychology and management consultant. Much more than merely a catalog of the studies and experiments in what makes the worker work, this volume evaluates their particular applicability, stressing the errors of indiscriminate and hasty conclusionjumping.

For those who would document their opinions about the importance of morale, company camaraderie, teamwork, democratic supervision, compensation, and other perplexities in the crossfire of intermural controversy, it is difficult to recommend a more valuable volume. It felicitously fills a glaring gap in the bookshelf of the personnel executive, where it deserves a place second only to the company operating manual.

W. W. Norton & Company, Inc., New York, 510 pages, \$9.50.

### Short Notes

• A further refinement of the fine art of avoiding, without evading, taxes is described in detail in the recent research study, Tax Planning for Foundations and Charitable Giving. Authored by William J. Casey, J. K. Lasser, and Walter Lord, this valuable volume details the methods by which individuals and companies gain by giving. Not merely a recital of legal theory, this study is a detailed work manual, offering many case histories for those who have not yet fully learned that it is better to give than to receive. Available from Business Reports, Inc., 1 Main Street, Roslyn, N. Y.; 236 pages, \$12.50.

# Mow! WARY-TALLY

Multiple-Unit Reset Counter



- Easily Readable from any Angle... Bold Figures Always Centered in Window... No Glare... Figures not Covered by Fingers in Operation
- Easily Portable, yet Ruggedly Built for Long Wear
- Separate Counting Units Can be Rotated like Tires on a Car, to Distribute Wear Evenly
- All Parts Corrosion-Resistant
- Working Parts of Hardened Steel
- Operation Not Affected by Extreme Heat or Cold
- Individual Tag Above Each Counter-Window Not Strip Tabs
- Veeder-Root Quality in Every Part

Now what's on your mind, that Vary-Tally can help you count? Write for news sheet and prices.

`The Name that Counts'



**VEEDER-ROOT INC.** 

HARTFORD 2. CONNECTICUT

Chicago 6, Ill. • New York 19, N. Y. • Greenville, S. C. • Montreal 2, Canada • Dundee, Scotland • Offices and Agents in Principal Cities

### T-H ACT

Continued from page 45



GUY FARMER: Under his chairmanship, the NLRB is reconsidering policies and reshaping its course.



THEODORE ISERMAN: "We business men should be outspoken about T-H. Its basic features are good."



WALTER REUTHER: "Time for a change" in handling T-H or "frank repudiation" of Republican pledges.



R. L. BOWDITCH: "Real hope for a law that is fair and square" to all lies in an aroused public concern.



SEN. IRVING IVES: "I've always thought labor relations should be a non-partisan matter"...but...



GEORGE MEANY: "We cannot count upon Congress for constructive action. It has failed labor."

Senator Taft's death prevented the White House staff from sending the message to Congress on August 1, and that only the storm of protest that later arose in Congress and in the business world prevented its being made official after Congress adjourned."

Iserman went out of his way, however, to say a good word for the two members of the White House staff known to have taken part in the mysterious draft message, Bernard Shanley, "a conservative lawyer," and Gerald Morgan, "official draftsman of the Hartley Bill in 1947," which was much more stringent than the Taft-Hartley Bill finally adopted after a House-Senate conference.

He puts his gravest doubts, however, in the form of questions, rather than assertions, following a description of what happened to the nineteen-point message after Senator Taft's death:

"The White House issued what I considered a most inadequate denial that the message was a final draft. The denial was inadequate because Durkin was still a member of the Cabinet and the White House was presumably reluctant to make him the scapegoat. Shanley and Morgan took the beating. The beating has been terrific.

"This explanation of what happened does not alter the fact that Durkin's program was and is a monstrosity. It does not alter the fact that, in the public interest, you as business people ought to protest and protest vigorously against most of it.

"If the explanation is valid, however, and I think it is, it means we can stop abusing Shanley and Morgan, and by indirection criticizing the President, and devote ourselves to selling to the Administration and to Congress a program that the facts and experience clearly justify.

### "Watch the White House"

"Keep a sharp eye, if you will, on Shanley and Morgan, on Sherman Adams, Max Rabb, and all the rest of the White House staff. But for the time being, at least, let us give them facts and guidance, and not abuse.

"I do not think this view of what happened means that we can dismiss Durkin's nineteen points. They are the least that labor leaders will demand. Correctly or incorrectly, many people in and out of Congress believe or claim to believe that someone in the White House, if not the President himself, approved the Durkin program. The political pressure on Congress to adopt much of it will be great.

"What is the effect of Durkin's resignation? Will Congress and the White House now understand that they can woo the support of labor leaders only by complete subservience to them?

### Talk to the Workers

"Will they now understand that this support is fickle at best and of highly questionable value?

"Will the Republicans understand that if they cater to the labor leaders, they will alienate their traditional supporters who, in 1954, will stay away from the polls in droves, as they did in 1948?

"Will they realize that the best way to win the worker's vote is by telling him of the many protections Taft-Hartley gives him against both employees and tyrannical and corrupt labor leaders, and by increasing those protections?

"Or will they, to make up for Durkin's angry departure, concede even more to labor leaders and withhold from working people, consumers, and employers protections that the record clearly shows they ought to have? . . .

"The answer [to how to go about getting changes in the Taft-Hartley Act] is simple: Know what changes you favor, what ones you oppose. Talk to your Senators and Congressmen. Write to them. If your company is against your writing on its letterhead, write as an individual. Write to the President. Write to the Vice-President, whose influence in this area is considerable. Write to Senator [H. Alexander | Smith of New Jersey, to Senator Ives, and to Congressman Mc-Connell. Insist they do what is right, not what seems expedient. And urge your friends and associates to do so, too."

The National Association of Manufacturers had this to say, in *The Washington Bulletin* in October:



REP. SAMUEL McCONNELL: "If there are any new approaches, I would be delighted to hear them."



SEN. JAMES MURRAY: Democrats won't pull chestnuts out of fire for the Republicans, he says.



FRED HARTLEY: It is obvious "the strategy of wooing the labor bosses has come to an abortive end."



MARTIN DURKIN: White House aids welshed on a nineteen-point program of amendments, he charges.



CYRUS CHING: "I do not think the law is half as good as industry thinks...half as bad as labor says."



SECY. JAMES MITCHELL: "I am for removal of unfair features. The President is for their removal. . . . "

"Members of Congress opposed to emasculating Taft-Hartley are vitally interested in seeing that Mr. Eisenhower gets the right advice on labor legislation before he completes his recommendations for T-H revision. Here is why:

"The palace guard at the White House is advocating weakening amendments to T-H.

"If the palace guard were not recommending weakening the Act, the likelihood is that Congress would be inclined to strengthen T-H considerably by extending more authority to the states in labor matters."

### Board Fails to Please

Even Congressional leaders are not completely in accord on what amendments are desirable. There is a considerable discrepancy between the views of House Labor Chairman McConnell and Senator Ives, acting chairman of the upper chamber's subcommittee on T-H.

McConnell told the Union League Club of Chicago last month that the major theme of millions of words of testimony before Congressional committees last Spring was dissatisfaction with the NLRB and its regional and field offices. The system has been tried and found wanting, he said, although efforts to meet objections have been made by enlarging the Board and by separating certain of its functions and putting them under an independent general counsel.

The Congressman did not refer to changes now taking place as a new NLRB majority, appointed by President Eisenhower, sets about reevaluating Board practises and, in many cases, reversing old rulings in the light of present objections.

Without plumping for any solution, McConnell told the Chicago group that three proposals have been made in this matter: (a) Enlarge the NLRB from five to seven members and make it a judicial body only, creating a new independent agency known as the Administrator of NLRB to investigate and prosecute unfair- practises cases and handle representation matters; (b) Abolish the NLRB and turn representation cases over to a small federal agency with no other responsibilities; let unfair-practises cases be handled by the federal courts with investigating and prosecuting functions residing in the Department of Justice; (c) Abolish NLRB as above, give representation to the special agency, but set up a specialized court (like the Tax Court) to handle unfair practises.

McConnell said testimony showed the NLRB refeuses to assert its jurisdiction over many small employers yet exercises jurisdiction over unions in the small-enterprise field, denying the small concern the advantages of either federal or state laws. He recommended an amendment limiting federal authority so as to allow the states to take such action as they see fit regarding small companies and their employees. On the other hand, he said he was opposed to letting federal 'law "override" state "right-towork" laws.

The Congressman suggested amending the secondary-boycott provisions of T-H to define such boycotts more clearly. He called for "close analysis" of the right of parties to "waive" a prohibition by contract, protection of boycott activities that are not "concerted" or not carried on by employees of the concern involved. He opposed the legalization of "roving pickets" who involve plants and customers not concerned in a strike.

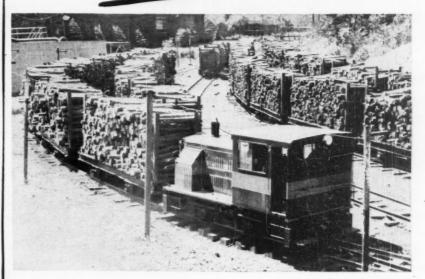
### National Emergencies

He favored, however, permitting extension of concerted activities to concerns that are doing work "farmed out" because of a strike.

As to national emergency strikes, the House labor chairman urged adoption of a multipronged approach, so neither unions nor managements will know in advance what the government will do and may, therefore, be more disposed to settle a controversy in collective bargaining. He would permit the President to report the situation to Congress and ask for special legislation, appoint an ad hoc board of inquiry to study the case and report facts, ask such a board to recommend a fair settlement, attempt to persuade the parties to use arbitration, direct a government agency to take a vote on an employer's final offer, or direct the Attorney General to seek an injunction for whatever length of time seems neces-

One thing is certain: No one can complain there is not a wide enough choice of proposed amendments to choose from.

# POWERFUL PULLER



## saves almost \$6,000.00 a year for large eastern paper mill\*

That's right, just under \$6,000.00 per year in savings since their 18 Ton Plymouth Diesel with Torqomotive Drive was placed in operation spotting and hauling carloads of pulpwood from the wood yard to the chipper.

Purchased in 1950 to replace 3 electric trolley locomotives, this Plymouth averages over 200 hours operation each month using only 5 gallons of fuel per day. While low fuel and maintenance costs contribute a good share of the savings, the balance is saved by the elimination of broken and damaged couplers formerly caused by rough starts and coupling shocks. This is made possible by the smoothness of Plymouth's Torqomotive

This is made possible by the smoothness of Plymouth's Torqomotive Drive and Plymouth's precision controls. Operators like Torqomotive Drive for its ease of operation which enables them to maintain peak efficiency over the full shift.

Smooth out your own switching and hauling problems and save money, too! Write today for information on Plymouth Locomotives. Models from 3 to 70 tons with your choice of gasoline or Diesel power, mechanical or Torqomotive Drive. Also Diesel-Electric.

\*Name furnished on request.



PLYMOUTH LOCOMOTIVE WORKS, Dept. A-19

PLYMOUTH, OHIO



Protect your inactive business records with proper storage. Liberty Storage Boxes are constructed of highest test corrugated fibre-board. Dust-proof, spill-proof protection. Liberty's storage system assures fast-finding of any record. Try Liberty Boxes for quality and low cost. 25 stock sizes.

Sold by leading stationers.



BANKERS BOX COMPANY
720 S. Dearborn Street • Chicago 5, III.



- Economy
- Convenience
- System



Solve it with—

- Low-CostConvenient
- STAXON THE



• STAX ON STEEL gives
you easy-action drawers—quick access to
records. Each corrugated fibre-board unit
is complete with factory applied steel
framework for sturdy support in rear and
front. Interlock side-by-side and stack
to the ceiling to save space. Letter size
illustrated—\$4.70 per unit, slightly



BANKERS BOX COMPANY
720 S. Dearborn Street · Chicago 5, III.

### EFFECTIVE ENGLISH

Continued from page 47

program essentially vocational. Thus, we commit ourselves to the development of what Professor Jehring calls the verbal man, in the first instance, and the visual man in the second. If there are differences in the innate capacities of people, chances are the people do not fall into clearly separated groups. Our educational approach is geared to intensify existing differences and, thus, complete the dichotomy.

The visual student is put into a vocational program which has shop courses. He is trained to learn by looking. The instructor shows him how to do things. He is made to rely more and more upon visual communication for his information. He learns some new symbols but these are relatively few when compared to those offered in the academic program. Finally, he leaves high school, and takes a job in the workaday world.

In this situation he is said to learn by experience. He relies heavily upon observation. He learns to operate a machine, to dress properly, to conduct himself in social situations-all examples of daily behavior patterns which can be learned by looking. In adult life he depends less and less upon symbolic communication. He reads the newspaper, but here pays most attention to pictures or comics. He listens to the radio, but mostly for entertainment. He converses with other visual men, who demand a low vocabulary level. In all probability his reading speed and comprehension drop from the modest level attained at the time he left school.

The visual man prefers picture magazines to the printed page. Reading bothers him because it takes time and the words confuse him. He likes to look at movies and television. He is motivated to learn in order to keep abreast in a constantly changing world, but would rather receive his communication through actual observation or through movies or photographs.

If, because of our inadequate selection process, a visual man is placed with the verbal group, he withdraws voluntarily sooner or later because the tempo is too fast. He seeks the comfortable environment of the visual man, swelling the numbers there until they compose the great majority of people.

The verbal man, on the other hand, pursues the academic program in high school where he learns even more and more complex symbols. He goes to college, perhaps to graduate school. Here symbols become still more complex, and more important to him in his communication process. In the dwindling ranks of this group the verbal man finally arrives at a point where it is possible for him to communicate only with other verbal men. Yet it is within this group of individuals that the new social and scientific concepts are born. These are the persons who do the research and develop the theories. They are the thinkers. They are on the frontiers of knowledge and should conceive





## Hunting for Lower Operation Costs?

Your transportation becomes hidden treasure when it is turned over to Business Fleets, Inc. Capital outlay, depreciation and repair bills are no longer a problem, and your fleet expenses actually become working capital!



WRITE US TODAY FOR THE COMPLETE FACTS

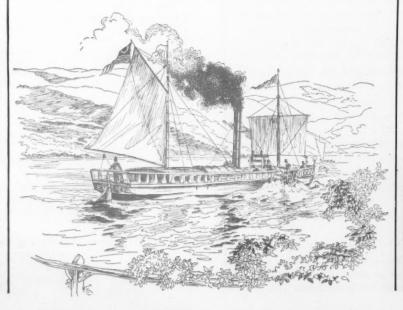


Telephone GLadstone 5-5800

### WANTED

Established Chicago commercial film producer desires two permanent staff account men experienced in motion pictures, slidefilms & television. Send full resume to L. P. Mominee. Drawing and commission basis.

Atlas Film Corporation
1111 South Boulevard
Oak Park, Illinois





and

# YOUR FIRST CHOICE IS TELEVOICE ...BY MORE THAN 3 TO 1 /

### EDISON'S NEW FASHIONED PHONE DICTATION SYSTEM SWEEPS NATIONAL PREFERENCE POLL!

"First choice is TELEVOICE!" So say the nation's biggest and busiest offices in a recent, independent, coast-to-coast survey! They proved their preference by purchasing it — 3 to 1 over any other! Edison was years ahead in introducing phone network dictation - and is still years ahead in design, simplicity, accuracy and experience. Only Edison has a dozen patented, can't-be-copied features that will speed the work flow of your entire office. Only Edison has years of experience in prescribing the just-right system to handle the work load. And only Edison makes TELEVOICE, the preferred system, used by companies like ESSO, GENERAL ELECTRIC, U.S. RUBBER, OTIS ELEVATOR, PROCTER & GAMBLE, ILLINOIS CENTRAL, BORDEN'S, and thousands of others. With one typist handling the dictation traffic of up to 20 dictators, Edison TELEVOICE will serve and save for you if you have three dictators or more. Investigate!

### These Amazing Savings Show Why TELEVOICE Is Preferred—3 to 1!

Yearly dictation time of executives ... CUT 70% Dictation-to-signature time ......CUT 75% Cost of dictation service per day .... CUT 47%



A DICTATING PHONE NETWORK TO SPEED OFFICE WORK FLOW

GET THIS NEW FACT-PACKED 16-page BOOK that tells why more than 1000 new users a month are turning to TELEVOICE! Send handy coupon today — don't delay - just clip to your letterhead and mail it! Or phone local representative listed under EDIPHONE OF EDISON VOICEWRITER.





EDISON (Ediphone Division) 63 Lakeside Avenue, West Orange, N. J. Please send me "5 BIG BENEFITS OF EDISON TELEVOICE"

NAME	TITLE
COMPANY	
ADDRESS	
CITY	ZONESTATE

EDISON



The new Fidelity Measuring and Cutting Machine feeds, measures, counts and cuts products of rubber, synthetic, or natural fiber construction automatically to any desired length. Designed to hold closest tolerances. Change length or diameter in a matter of seconds. Safe—fast—reduces labor costs and material waste.

Catalog H gives full details. Write today or if you'd like to see this machine in operation—visit the new show rooms at our plant.

Designers and Builders of Intricate, Automatic Precision Machines

**CUTS — AUTOMATICALLY** 

### FIDELITY MACHINE COMPANY, INC.



SINCE 191

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

Export Dept.: 25 Beaver Street, New York 4, N. Y.

Canadian Representative: W. J. Westaway Co., Ltd., Hamilton, Ontario, Canada. the answers to the many problems troubling our society.

It is at this point that Professor Jehring presents the perplexing situation which, he thinks, is basic to our communication dilemma. The verbal man develops the new concepts, theories, and ideas, which somehow eventually must be made useful to the great numbers of visual men in our society. If we expect the visual men to be well informed, some people somewhere in our society are going to have to translate the work of the verbal men for them. The hope of narrowing the gap between the groups is gone.

In fact, he argues, the gap is widening. The formal school is the only agency available to develop the visual man more to the pattern of the verbal man, so that ideas may be communicated between them. But there is an informal program of public instruction carried on daily. The press, the radio, movies, commercial advertising, all team up to mold the visual man. Billions of dollars back this program of instruction, and in its fold is a well-paid brain power working relentlessly. This instruction has about

offset the official education program with its smaller budget and constantly thinning ranks of really capable people. It might be said that Jehring foresees a sort of downhill sleigh ride which gains momentum with each passing day. How to meet the situation: Figure out some way to translate the ideas of the verbal man into the various media that reach the visual man.

Whether Professor Jehring's hypothesis survives the findings of further research remains to be seen, but nonetheless, conditions do exist in industry to-day which make one feel that there is a basic truth in what he says. In addition to the general observations presented earlier, the lack of power to communicate is even more evident in the day-to-day operations of industry.

Most of us are familiar with the penchant of high business executives for writing memoranda. They dash off this and that with an abandon which almost bewilders their subordinates. No one will ever know how many letters from presidents of industries were written to business and industrial workers of the United States in any one calendar

### **Subscription Order Form**

DUN'S REVIEW and Modern Industry 99 Church Street, New York 8, N.Y.

One year subscription to U. S. A. and Possessions, Canada, Pan America countries - \$5. Elsewhere, \$10.

	☐ Payment Enclosed or	☐ Bill Me
Send to		
Name		
Firm		
My Title		
Address		

### Closes bags quickly, securely at LOW COST!





- Entirely portable—Weight: 101/2 lbs.
- Requires no plant space or supports • Merely plug into any electrical outlet
- Handles all textile and paper bags
- Closes 100 lb. bag in less than 6 seconds

FOR COMPLETE INFORMATION MAIL THIS COUPON

DAVE FISCHBEIN COMPANY Dept. D.R.

year. The flow seems continuous. The material generally is important, timely, authoritative-and almost imponderable for the worker. In a time of stress, or sometimes in routine matters, not only the president, but practically every other management executive down to the general foremen, gets into the act.

I have analyzed hundreds of these memos myself. Nearly all of them have certain characteristics in common. First of all they lack clarityclarity in the sense that the writer makes clear to the reader just what he means. They lack clarity in the sense that the writer, himself, knows what he means before he tries to make such meaning clear to the reader.

### Common Failures

Generally these memos are composed of long sentences and big words. They deal largely with abstractions. They are practically devoid of illustration although they do occasionally utilize charts, graphs, and statistics. They are seldom phrased in the same vernacular which the writers would use in conversation. Most of them are long. More frequently than not they assume some common bond of interest, or some common goal or objective, which is presumed by the writer to exist for both him and the readers, but which in reality may not exist.

In contrast with this, most studies of the reading comprehension level of industrial workers reveal findings which are stunning to most executives-findings which, in fact, the executives often refuse to accept. While work forces vary from industry to industry or location to loca-



"A whole convention of men who could get you something wholesaleand we don't know a single one!"



### **INSERTING & MAILING MACHINE**

CUTS COSTS 80%

Do away with expensive hand labor...and costs come tumbling down!

Inserting & Mailing Machine executes all the intricate mailing operations. It gathers and inserts up to eight enclosures; moistens flap and seals envelope; meters postage or prints indicia; counts and stacks. One operator feeds mailing material and removes finished pieces-the machine does everything else!

Neat, clean, accurately stuffed pieces come off the stacker at the rate of from 3,500 to 4,500 per hour-depending only on the number of enclosures. Large mailings which once took weeks-now can be made ready for the post-office overnight.

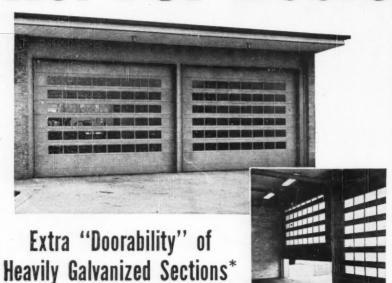
How much can you save? It's easy to find out. Write today for illustrated folder, Reducing Mailing Costs by 80%...or ask to see the machine in action in your city at your convenience.

### INSERTING AND MAILING MACHINE CO.

PHILLIPSBURG, NEW JERSEY

GATHERS ENCLOSURES INSERTS INTO ENVELOPE SEALS ENVELOPE PAINTS POSTAGE INDICIA COUNTS & STACES

# Kinnear Steel Rol-TOP Doors



Will not sag, warp, rot or split
Built to fit openings of various sizes
Easy space-saving upward action
Opens completely out of the way

Lasting resistance to fire, wind, weather Heavy-duty torsion spring counterbalance Provision for any number of glass panels Easily installed in old or new buildings

WRITE FOR THIS
FREE
ROL-TOP BULLETIN
TODAY!



In Kinnear Steel RoL-TOP Doors, you get the efficiency of smooth ball-bearing upward action ... plus all-steel strength and durability ... plus provision for glass panels in one or more door sections, as desired.

\*To assure extra service life with minimum maintenance, the rugged steel sections are given a heavy coating of pure zinc (1.75 oz. per square foot of flat metal per ASTM standard) by the hot process. Then Kinnear's Paint Bond (a special phosphate immersion process) is added, to make sure paint will adhere immediately and thoroughly to the protective zinc coating.

In every detail, Kinnear Steel RoL-TOP Doors feature extra strength and ruggedness, for long, heavy-duty, low-cost performance. Sizes to fit any opening. Manual, chain, or motor operation. WRITE FOR FULL DETAILS.

Kinnear Steel RoL-TOP Doors are designed and built by the same door specialists who *originated* the door with the interlocking steel-slat curtain—famous for more than half a century as the Kinnear Steel Rolling Door.

The KINNEAR Manufacturing Co. Offices and Agents in All Principal Cities FACTORIES: 1500-20 Fields Ave., Columbus 16, O.—1742 Yosemite Ave., San Francisco 24, Calif.

tion, most urban industrial populations have roughly equivalent levels of reading comprehension. The following classifications are reasonable.

The average level of education for urban industrial work forces may be as low as eighth grade. The average level for first-line supervisory personnel is about ninth grade. This means, of course, that any communication written at a level above the eighth grade, almost certainly, will not be understood by the average worker. It makes no difference how lucid such writing may appear to the superintendent; it will be a confusion of words to the worker.

### Primary Danger

The great danger in all this lies in the misconception of the writer that he has discharged an obligation to communicate with his subordinates. After having dispatched his memorandum, he operates on the assumption that the content was understood by all who read it. This sort of action complicates the communication problem still more, and may lead to additional conflict in the management-worker relationship.

It is a relatively simple matter to lay down a few writing rules for business executives to use in communicating with the people they employ. Such rules need not encompass all aspects of the problem, but merely hit the high points. For example, the following guide could be used for persons writing for readers whose comprehension level is about eighth grade.

- 1. Average sentence length for easy reading—not over 14 words.
- 2. Average number of syllables per 100 words—120 to 140.
- 3. Avoid unfamiliar words.
- 4. Avoid prefixes and suffixes if
- 5. Avoid abstract references, and use a good many personal words and sentences.

To-day the average executive confronted by such limitations typically blows his top. He feels that he

Dun's Review and Modern Industry will appreciate early notices of change of address. Usually, it is necessary to have four weeks' notice. Please include the old address.

### ALLEN 1-TON POWER BENCH TYPE PUNCH PRESS



Cuts Costs and Saves Money On Stamping, Forming, Drawing, Etc.

Overall height—17½"
Base size—8½ x8½"
Die bed—5½ x8½"
Ram face—1½ x3½"
Ram stroke—¾"
Positive ¾" ram adjustment.

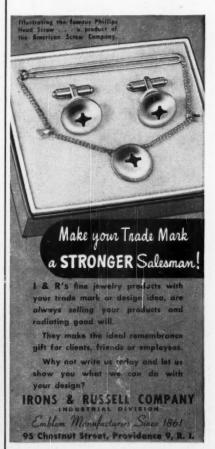
Sturdy, single pin, non-repeat hand lever clutch. V-belt drive. Weight 105 lbs.

### 30-DAY MONEY-BACK GUARANTEE

Full year warranty against defects. Send your order today. Price includes motor bracket, V-belt, motor pulley.

Free Circular

ALVA F. ALLEN
DEPT. D CLINTON, MO.





No fair-weather soldiers are these! Built to stand the gaff in modern offices, each Ribbon and Carbon is supremely serviceable for its own purpose — head and shoulders above the mass-production commonplace! A joy to executives, secretaries and parboiled purchasing agents!

PANAMA-BEAVER Hibbons Carbons

MANIFOLD SUPPLIES COMPANY

Coast to Coast Distributors

188 Third Avenue, Brooklyn 17, N. Y

FREE Copy of New
Authoritative Handbook

"HOW TO FORECAST BUSINESS TRENDS"

Protect your profits and capitalize on tomorrow's changing business conditions
with this most authoritative, dollarmaking booklet of its kind ever published.
"How To Forecast Business Trends" gives
you all the rules and important factors by
which its famous editor calls coming business plays with unequalled accuracy each
day in The Journal of Commerce. Tells, for
instance, how to evaluate such trend indicators as the stock market, commodity
prices, inventory changes, plant expansions, wage changes, opinion surveys,
politics, mass psychology. Not a crystal
ball, but today's most practical guide to
future profit planning. Yours free with a
money-saving trial subscription to The
Journal of Commerce, 80 issues for only
\$7.00.

FILL OUT AND MAIL THIS COUPON

3	ournal of Commerce 80 Varick St., New York 13, N.Y.	
Busine: to the	send me my free copy of "How to Foreco is Trends". My remittance for trial subscripti Journal of Commerce 80 issues for on is enclosed.	on
Name		
Addre	55	
City	Zone	
State.	DR-6	٠.

cannot express himself when he is placed in such a strait-jacket. He feels ashamed of the product which results when these limitations are imposed. He may flatly refuse to abide by such rules. This, in spite of the fact that people do not comprehend above their comprehension level. Some sort of obscure pride, or the habit of many years generally prevails.

The average executive, it seems, prefers to write in a way which is destined to escape true comprehension—and then pound the table in a command that something should be done about communications.

### What's to Be Done?

We have looked briefly at the magnitude of the communications problem in industry. We have examined Jehring's hypothesis regarding the impact of formal education and unofficial education on our society as it produces the visual man. And, finally, we have scrutinized certain conditions and behavior patterns as they exist in industry today. Certainly, some valid notions about the problem can be summarized from the material we have.

1. The breakdown in our communications hampers our industrial productivity, lowers the morale of all industrial people, and contributes to the defection in the unity of our society.

2. The barriers to good communications stem from the language itself, the emotional relationships of people in our present culture, and a misunderstanding of each other and of the communicative processes we

3. The structure of our society and of our educational processes team up to produce groups which continually are being pushed outside



"I asked you to get inexpensive office equipment, Parsley, but this is false economy."



## MARASPERSE

Marathon's MARASPERSES are low cost, powerful dispersing agents used extensively in such applications as 1.—oil well drilling, 2.—clay and carbon black dispersions, 3.—insecticide and pesticide formulations, 4.—dye manufacturing, 5.—emulsion stabilization, 6.—cement and ceramic mixes, 7.—handling and transferring of slurries, 8.—grinding compound dispersions and many others. Marathon also manufactures tanning agents for leathers, chemicals for organic treatment of boiler waters and other lignosulfonate derivatives.

Magic? . . . Yes! But the real magic is not in changing solids into free-flowing liquids, instead, it's in the tireless resourcefulness of Marathon's research personnel who have discovered and developed a series of lignin chemicals that perform many industrial "miracles". And . . . these chemicals are recovered from a source material that is still described by the paper industry as "SPENT LIQUOR".

Today, you are almost certain to enjoy the benefits provided by some one of Marathon's Marasperses... in the foods you eat, the clothing and shoes you wear, in the tires on your car, and on the streets and highways over which you travel. These are but a few of the great variety of industrial uses for Marathon's Marasperses and there are many others yet to be discovered.

If you would like to try one of Marathon's Marasperses in an application in your plant, write for information. You will receive complete data and, in addition, our technical staff will willingly cooperate with you.

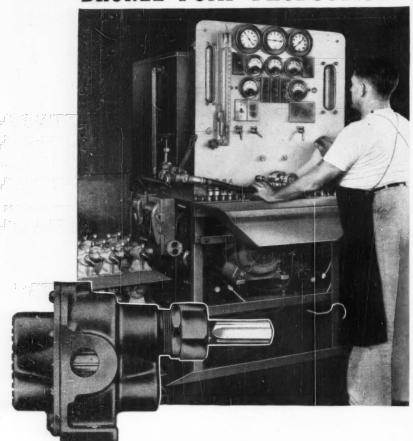
MARATHON Corporations

CHEMICAL DIVISION

ROTHSCHILD • WISCONSIN

# The X, Y, B, M

# of OBERDORFER'S NEW BRONZE PUMP PRODUCTION



Every Oberdorfer bronze pump now produced is tested by one of the performance measuring devices designed in our laboratories and illustrated above.

This machine very accurately and rapidly discloses any variations from our high standards of volumetric efficiency at several speeds and pressures, as well as inches of vacuum, power consumption, foundry quality and the degree of precision of machined parts and assembly operations.

Only after each pump has satisfactorily complied with all of our standards is the inspector allowed to stamp (on the right port of *each* pump) his indentification, which might be X, Y, B or M.

This procedure has made possible a uniform high quality production unavailable here before.

The new Oberdorfer pumps are stocked by the leading Industrial Distributors everywhere. Write us for the one nearest you.

# OBERDORFER BRONZE PUMPS

Industrial Pump Div., Oberdorfer Foundries, Inc. 741 Thompson Rd., Syracuse, N. Y. the communicative reach of each other. And this separation occurs at a most crucial time, for to-day, as never before in history, the masses have real power.

4. The inertia of the whole system is such that it carries adults in the present direction with an almost irresistible force.

With these things in mind what are the bases from which we evolve a solution to the problem? It seems rather elemental that either of two things can be done. We can so educate those persons who develop the ideas and initiate communications that they will express themselves in a manner which will be understood. Or we can raise the comprehension level of the masses. Perhaps we must do both.

The solution to the problem of raising the comprehension level of the majority may not be found for some time. The other alternative could yield more immediate results.

### Basic English

There is no question about the fact that the average business executive reflects in his communications the training he received during his school days. Whether his teachers meant it to be that way or not, his training has made him look upon English as a barrier to, rather than a channel for, communication. It is the vehicle of the poets, the great masters, and the professors. On the one hand he has an acute awareness of beauty of expression, form and style, and on the other of commas, semicolons, and participles. He does not understand these things. In fact, he fears them. Yet his memos are all cluttered up with literary English. The notion that his language is a device by which

he must communicate with clarity has eluded him. But, paradoxically, it is for this purpose alone that he presumes to put it to use.

In a democracy one basic purpose of our schools is to teach individuals to live in the world as it is. Our world to-day demands communication; in fact, it will perish without it, and English should be taught for the purpose of communication. If somehow, we could get across the idea that the first and most important purpose of any language is to express thoughts with clarity and simplicity, a long step forward would be taken.

This should not be construed to mean that the mechanics of grammar, or the study of literature, have no place in our schools. On the contrary such study is desirable, necessary, and worthy of great effort. It should be emphasized, however, that English for communication has lost by default in the past, with the result that many executives of business and industry fail in their jobs and in their roles as leaders.

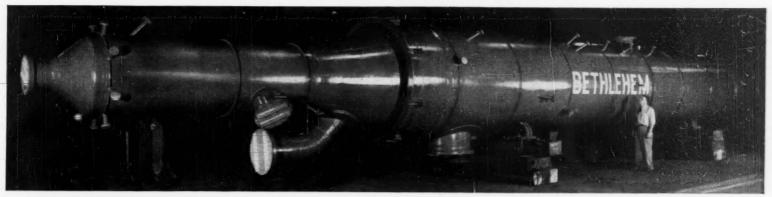
If only a small step were taken in this direction, the effect upon our future could be profound. No doubt the communication gap has existed before. But to-day the masses are growing in power. We dare not be passive as we once were, letting new social and scientific concepts trickle down to the common man. The picture of industry only sharpens our attention to the picture of society as a whole. We live in a time when democracy is on trial. We believe in education as the bulwark of democracy. This breakdown in communication indicates a breakdown in education for democracy, and eventually, a breakdown in democracy.

THE END





**FRACTIONATING TOWER** — This 82-ft tower for an oil refinery weighs about 31 tons and is 8 ft in diameter. Its shell is made up of  $\frac{1}{2}$ -in. steel plate — welded carefully to meet the vessel code of API and ASME.



REACTOR TOWER — Welded of both 7/16-in. and 5/16-in. steel plafe, this 76-ft vertical tower weighs about 24 tons. Within the shell are some rather complex "innards." It's built to API-ASME vessel code for an oil-refinery process.



BUBBLE TOWER — Slightly more than 95 ft long, this chemical process tower tips the scales at nearly 30 tons. Tested hydrostatically to 756 psi, it's made of welded plate in both 1 1/16-in. and 7/8-in. thicknesses.

### Tall Towers Made by Welding

These big towers are typical of the complex types of equipment that are fabricated by our Weldment Shop—not just for chemical and petroleum processes but for builders and users of all kinds of machinery.

Bases, frames, assemblies, vessels, presses, large-diameter pipe work, autoclaves, kilns, tanks — all of these are economically made by welding together steel plates of varying thicknesses.

Here are some good reasons for looking into Bethlehem Weldments:

**ECONOMY** – Excess weight is eliminated, but at no sacrifice of rigidity or strength. This reduction

in weight usually means a real saving in the total cost of machines or assemblies.

**FREEDOM OF DESIGN** — There's absolute freedom of design because the steel plate can be bent, pressed or shaped prior to welding without affecting its physical structure. Either forgings, castings or structural shapes can be incorporated where desirable.

**VERSATILITY** — All sizes and shapes of steel can be welded together from blueprints. Weldments can be simple or complex parts, sections of assemblies, finished machines, or the types of processing towers shown above.

Be sure to get our price the next time you need large machinery parts, frames or assemblies. You may be pleasantly surprised at the savings that are possible with weldments made in our well-equipped shops. Get in touch with the nearest Bethlehem sales office for full details.

BETHLEHEM STEEL COMPANY BETHLEHEM, PA.

On the Pacific Coast Bethlehem Products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation.



### BETHLEHEM STEEL

### INDUSTRIAL METHODS ... and Materials

Ready to perk up product and production line are new materials,

automatic machines, new ideas in weighing, handling, corrosion-prevention.

# Choosing colors that help sell products

WHAT SHADES will tempt the wary customer this year? How can color be used to promote product and company recognition?

Here are suggestions from makers of products ranging from plastics to petroleum:

Monsanto Chemical Company's Plastics Division has a color styling service which keeps tabs on mass-market trends in color as a service to Monsanto customers (particularly molders of plastics), reports a new cycle is starting.

Before World War II, Faber Birren, Monsanto's color consultant, notes, rust and green

were the top "home" colors (living room and bedroom). During and after the war, rose and blue were the big sellers. To-day, says Birren, a green-rust cycle again holds sway. But, he believes, these colors have about reached the point of saturation. A swing back toward the blue end of the spectrum is indicated—and there are signs that it is already beginning to take place (see below).

In the kitchen, color cycles have been less well defined. Vermilion red has long been dominant, with white the top choice for walls and equipment. But, a recent Monsanto survey brings evidence of changes here, too—of a shift towards softer colors like pastel yellow (for walls as well as serving dishes) and Monsanto's new "flame red" shade.

New color trends are not confined to homefurnishings. For instance, more and more manufacturers of cleaning compounds are making use of color—often featuring a color change—either to indicate the correct dilution, or simply to spotlight their presence.

Du Pont's well-known Soilax is an example of the former (it is pink as sold; turns green when the proper dilution is reached). The new "Old Dutch" cleanser is an example of the latter. It turns "sunshine yellow" when wet, simply to spotlight its presence, and, incidentally, fits in well with the trend toward use of yellow in the kitchen.

In a very different field—petroleum products
—Standard Oil of Indiana is changing its use of
color to gain new sales and manufacturing bene-

# Keeping the little ones in line

Tiny tractors, wrenches, spark plugs, storage batteries, and vacuum cleaners that float up and down in the transparent end of a pen or pencil make attractive product promotions. But producing them is not a simple matter—especially since they must be accurately decorated; and they have to be kept reasonable in cost.

Progressive Products, Inc., 701 Lehigh Avenue, Union, N. J., which makes these "animated ads that write" (and also such items as animated umbrella handles and paper weights; and keychain flashlights) solves the problem in a way

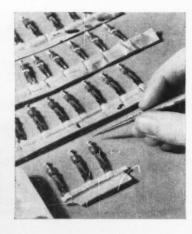
many companies handling small parts might find useful. Instead of trying to handle the tiny product models separately, Progressive fastens a score or more together—with Permacel tape.

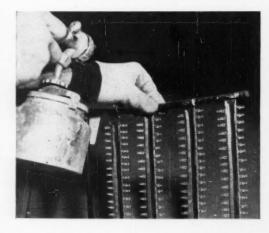
The photograph above shows a few of the several hundred types of pens and pencils Progressive Products makes. Below, at left, is a close-up of one: the Lone Ranger. The next two pictures show how taping the little models together simplifies hand-painting and spray-lacquering. The last photograph is a close-up of the taping operation itself. (Note that injection-molding

sprues are used as "handles" so tape won't cover the model.)

Permacel Tape Corporation, New Brunswick, N. J., which supplied the tape used here (Permacel 68, waterproof cloth tape, chosen for its ability to withstand lacquer-baking temperatures), proudly points out that, like many other companies, Progressive Products finds tape useful for many operations besides "keeping the little ones in line." Permacel tapes are used in drafting; in labeling chemical containers; and on the boxes that hold the finished product.









#### Can you use these production ideas?

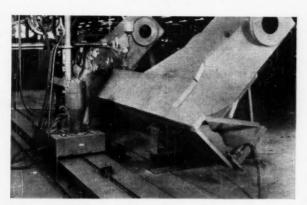
Here are six good ideas from as many production operations in plants heavy-duty machinery, welding electrodes, and camera lenses. making such diverse products as permanent magnets, aircraft parts, Chances are at least one of these methods can be used in your plant.



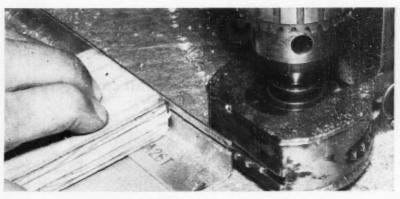
Raw material storage gets push-button treatment at Carboloy magnet plant. Each silo holds 250 tons of dry sand—30 in "live" storage, ready to flow at an instant's notice; the rest in dead storage, waiting until needed.



Abrasive cut-off machine at Ryan Aeronautical Company is kept busy by the simple but effective rack-feeder pictured here. When one length of material is used up, operator need only pull pipe lever (center) to roll another one into position. Inexpensive set-ups like this can be used in quite a few plants.



Flexible welder was built at National Supply Company plant by combining a standard welding head from an old machine, a few steel plates, and some track sections.



Drill turns into saw at Consolidated Vultee Aircraft to trim frames, angles, and extruded sections. Height of cut is readily controlled by adjusting drill press table. Wood pressure block keeps operator's fingers out of harm's way.



Product mixes are kept free of contamination by novel mixing method at new A. O. Smith welding electrode plant. Instead of using one mixer for all tanks, AOS builds mixer into each; supplies power with spinning device.



Induction heating speeds lens-blocking at Argus Cameras. Method is used to heat dome-shaped tool on which lenses are placed for grinding, replaces old hot-plate bunsen burner. Same heating unit is used for blocking and removing blanks, is faster, healthier, safer for lenses as well as operator.



#### Never before has PAX paid for itself so quickly

As operating expenses spiral, business management is knuckling down on costs with P-A-X—the business telephone system entirely separate from the public telephones!

Thousands of companies make better use of costly time with this fast, automatic inside telephone service. P-A-X takes a man anywhere within a company in seconds! Saves time, steps, errors, fatigue, in every operation. Today's costly man-hours make that a greater saving than ever before!

Company-owned P-A-X also lowers telephone costs . . . usually pays for itself directly, within a few years' time. Actual case studies of P-A-X savings have been prepared with the help of many P-A-X users. You'll find a letter or call most worthwhile. Automatic Electric Sales Corporation (HAymarket 1-4300), 1033 West Van Buren Street, Chicago 7, Illinois.



PAX is a system of "inside" telephones, separate from the public telephones, and owned by the user.

PAX is completely automatic and establishes all "inside" calls, within seconds, at any time!

**PAX** saves on public telephones and switchboard—permits marked economies in rented equipment.

PAX is manufactured by the originator of the automatic telephone.

PAX telephones and switchboards are identical in quality with your public telephone equipment.

P-A-X	business telephone systems
AUTOMATIC ELE	CTRIC

Please send me n	nore information:
Name	
Firm	
Address	
City	State

fits. This change is particularly interesting in that it represents a marked departure from previous practice:

Until recently, the company used color primarily for *product* identification, employing a system of more than 30 different color combinations to identify drum contents (blue-and-gray for industrial oils, red for motor oils, and so on).

But A. C. Sailstad, Standard's general manager of sales, believes this system has about reached the point where it confuses rather than helps the customer. And so it is being abandoned, and the change to an over-all *company color*—bright blue—is being made. Drums will all get an overcoat of this color and contents will be distinguished simply by a stenciled label—a device that was used previously anyway, in addition to the color code.

The new system is expected to offer many advantages besides eliminating confusion and fostering company recognition. Sailstad expects use of one color to cut costs and inventories of drums and paints, reduce waste, simplify procurement, and make filling operations more efficient. Those are worth-while aims for any product change, and point up the value of reexamining color systems in preparing for the competitive era ahead.

#### Strip metal is stripped for action

Two major trends—automation and reduction of product size and weight—make thin-strip materials increasingly important. They're readily adaptable to automatic feeding, and they're naturally light in weight. It's good news, then, to find an increasing variety of strip materials on the market.

Tough, cobalt-base alloys are now rolled into strip as thin as five tenthousandths of an inch by General Plate Division, Metals & Controls Corporation, Attleboro, Mass., using the new rolling mill pictured on the next page.

Magnesium strip comes down to a thousandth of an inch with a new technique that's said to preserve its softness and flexibility. Burgess Battery Company, Freeport, Ill., notes that strip used to get hard and stiff when rolled this thin. But Burgess uses an electrical heating system in which the strip itself serves as the



Push-button corrosion control

New addition to the line-up of aerosol sprays (see September, page 56) is the corrosion-stopper pictured here, distributed by Protective Coatings, Park Ridge, Ill. It's a vapor phase inhibitor (VPI), a non-greasy compound that "can provide reasonably long-term protection against rust without bene-

fit of vapor barriers...long-term protection when items are in closed containers." Availability of VPI compounds in aerosol form (they were first supplied only in impregnated wrappers) opens up many new plant uses: Tote boxes can be sprayed to safeguard partsin-process; tools protected, and so on. resistance element to overcome this.

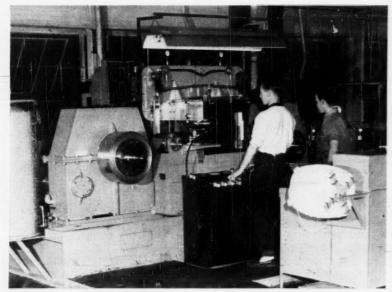
Phosphor bronze, tantalum, and other special alloys can now be had in strip up to six inches wide and thicknesses down to half a thousandth, held to tolerances as close as plus or minus a ten-thousandth, from American Silver Company, Flushing, N. Y., which specializes in close-tolerance, thin-strip materials. Applications for the phosphor bronze strip include bellows, diaphragms, contacts, and bushings. Tantalum strip can be used in electrical and electronic systems, and in chemical processing equipment.

Producers of more-common strip materials are also expanding their facilities, and offering new and better services. Not long ago, for instance, Scovill Manufacturing Company announced a new aluminum strip mill that can produce extralong coils (to permit longer machine runs) in a variety of widths, thicknesses, and alloys.

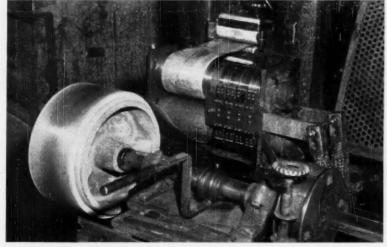
Alan Wood Steel Company is well along in its multimillion dollar expansion program aimed at "supplying the highest quality of hot and cold-rolled steel sheet and strip available anywhere." Keystone of the program is Alan Wood's recently installed continuous strip pickler that is capable of processing 20,000 tons of strip a month. Coming up next: a new \$6 million cold-rolled strip mill.

#### Weighing by remote control

Accurate weighing, always important when containers are being



Cobalt-base alloys are rolled as thin as half a thousandth of an inch on this new equipment at General Plate Division, Metals & Control Corporation.



Flexible magnesium strip is produced by this new mill at Burgess Battery. It features new electrical heating method, rolls to a thousandth of an inch.

### Mechanized merchandising\*

through Oiljak creative design and development

#### will increase your sales

by Point-of-Sale impact

#### and give higher unit profits

with solid consumer acceptance

#### by reducing distribution costs

\*Mechanized Merchandising is a method of making available better products and services to more consumers through the use of a mechanical device for vending, servicing or displaying.

The Oiljak Manufacturing Company — in this new field — has designed, developed and produced such famous examples of Mechanized Merchandising as . . . the Snow Crop Orange Juice Dispenser—the Champion Spark Plug Service Unit.

If Design Problems or limited production facilities are hampering your efforts toward Mechanized Merchandising, Oiljak's full design, manufacturing, packaging and shipping departments can be your solution. By doing business with Oiljak you are adding to your own plant facilities — with no capital investment . . . and are getting the benefits of 30 years experience in design and manufacturing.



MANUFACTURING COMPANY

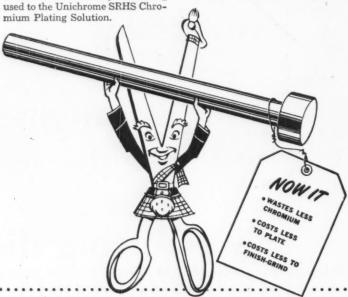
24 Depot Square MONTCLAIR • NEW JERSEY MR. COST CUTTER SHOWS HOW:

#### 6-hour plating job gets cut to 3

THROMIUM PLATE, when thick, supplies a hard, wear-resisting surface. In order to get the required thickness on right angle shoulders of aircraft shafts, one company was depositing chromium .012" beyond finish size on the ends and then grinding to tolerances. Plating alone took 6 hours.

When United Chromium was called in, the Unichrome Man showed how to convert the ordinary bath being used to the Unichrome SRHS Chro-

The change brought about was startling. Chromium now had to be deposited just .008" oversize on the ends because the plate not only covered angled surfaces more uniformly but also more smoothly. Because the Unichrome SRHS Bath plated twice as fast as the ordinary solution, plating time was cut to only 3 hours. And with ½ less chromium to remove, still further time was saved in finish-grinding.



#### MORE WAYS UNITED CHROMIUM HELPS CUT COST OF COATING METALS

#### Packaging costs reduced

Producer could not ship concrete hard-ening solution in economical, ordinary steel drums because of hazardous chemical reaction on the steel. Successfully resisting the chemical, a Unichrome Plastisol Drum Lining ended the costly shipping problem.



#### 75% saving on labor

Compared with cost of chromium plating small sewing machine parts in baskets, manufacturer estimated that the Unichrome Chromium Plating Barrel saves 75% on labor alone, and uses ½ less power.

#### It pays to consult United Chromium on Metal Finishing Problems



United Chromium offers you the advantages of: (1) 25 years of specialized experience in metal finishing: (2) Wide experience in both organic and plated finishes; (3) A diversified line of products for decorative and functional finishing – including plating processes, protective coatings, chemical conversion coatings for zinc; (4) Thinking geared to cost-cutting, product-improving possibilities. We'd welcome an opportunity

to help you "Finish it better AND SAVE."

UNITED CHROMIUM, INCORPORATED 100 East 42nd St., New York 17, N. Y.

Waterbury 20, Conn. . Detroit 20, Mich. . Chicago 4, Ill. . Los Angeles 13, Calif.

In Canada: United Chromium Limited, Toronto, Ont.

filled or batches being mixed, is even more important in these days of high-cost materials and increasingly rapid processing. Mistakes can be costly indeed.

To meet the need for accurate, automatic metering of materials, and to permit remote control of such operations, Richardson Scale Company, Clifton, N. J., has a number of unusual systems.

Among the newest and most interesting are these:

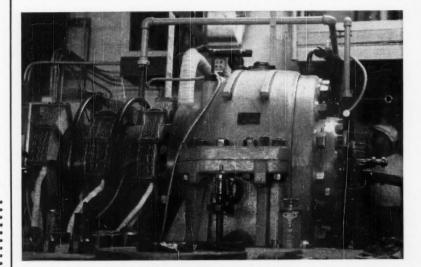
• An automatic tare-weighing system that meters predetermined amounts of materials into containers, compensates for variations in container weight (the tare, in this case), and provides a printed record of the weight delivered.

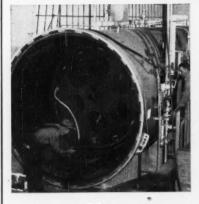
According to Richardson, the sys-

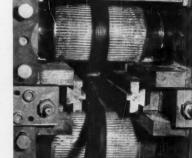
tem makes it possible to eliminate profit-grabbing overages without risking dangerous under-filling. And it provides a printed record to prove it. Petroleum and chemical companies, dairies, and makers of food products are among those which might use this set-up.

• An automatic formulation system for remote control of concrete, chemical, rubber, food, and other bulk material mixes. This system, which consists of a weight-control dial panel and a recorder, will draw predetermined amounts of several different materials from their bins, record the amount of each delivered, and compensate for any material that remains in the feed hopper.

A big advantage is that control panel and recorder may be placed at







Hot lead does it better

Pioneer Rubber Mills, San Francisco, Cal., is living up to it, name with this molten lead-extrusion unit used to make rubber hose. Said to be the first of its kind in the US, it provides a temporary supporting jacket for the hose during vulcanization (lower left) when it is filled with water under high pressure and might "explode" if not protected. (The rubber does not attain full strength until vulcanization is complete.) Formerly, lead jackets

were extruded cold. The extrusion machine had to be stopped frequently to insert new lead billets-and the length of hose that could be produced was limited by the length of coating that could be extruded from a single billet. The new method, using molten lead, makes the coating process continuous, and permits Pioneer to manufacture hose of almost any length. After vulcanization, the lead coating is stripped off, as right-hand picture shows.



ONE MAN DOES MORE THAN 3 OR 4 ... WITH A BARRETT

whether you have to, whether you have to, or just want to collect dust efficiently and economically because it's good public relations to do so, Prat-Daniel Dust Collectors are the difference between black and white. When you install Mechanical Collectors you are assured high over-all efficiency.

multiplicity of small diameter tubes

resulting in a higher sustained

efficiency over a wide operating range.

The smaller the diameter of the tube

the greater the centrifugal force on

the dust particles . The greater the

centrifugal force, the higher the efficiency

of the dust collector. That's why when

quality and results are the determining

factors it pays to install

Collectors. Why not contact the Thermix

Project Engineers THE THERMIX CORPORATION GREENWICH, CONN (Offices in 38 Principal Cities)

Prat-Daniel, specialists in this field

Corporation, Project Engineers for

Canadian Affiliates: T. C. CHOWN, LTD., Montreal 25, Quebec; Toronto 5, Ontario

Designers and Manufacturers

PRAT-DANIEL CORPORATION
SOUTH NORWALK, CONN.

These are Prot-Daniel Products

POWER DIVISION: Tubular Dust Collectors, Forced Draft Fans, Air Preheaters, Induced Draft Fans, Fan Stacks.

THERMOBLOC DIVISION: Direct-Fired Unit Heaters for Industrial and Commercial Applications.

a distance from bins and mixing tanks, so that the entire compounding operation may be controlled and monitored from a central office.

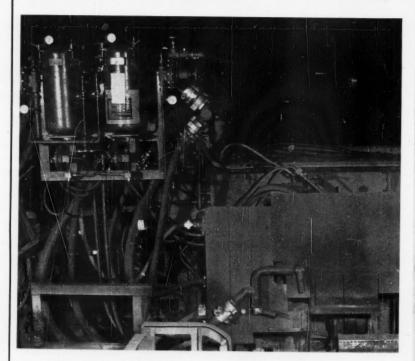
It should also be possible, Ingram H. Richardson, company president, points out, to adapt this system for completely automatic operation—using punched cards or tape or prepared templets for each product mix; and automatic conveyors to

bring materials from storage bins to feed hoppers.

#### Conference report on materials

Those who missed last year's Basic Materials Exposition and Conference can catch up with the latter in print. Clapp & Poliak, Inc., 341 Madison Avenue, New York





#### Slag takes a powder

This new remote-controlled powder scarfing machine for conditioning stainless steel billets, installed at Atlas Steels Limited in Welland, Ontario, removes surface defects automatically, eliminating a difficult and time-consuming manual operation. Surface conditioning of stainless steel has always been a tough job — particularly since the material tends to resist flame-cutting and cleaning. The new process overcomes this resistance by introducing powdered

iron into the cutting flame. This creates an exothermic reaction which raises the flame temperature, and makes it possible for the machine to do its work. In the lower photograph, the powder unit is at the left. One of the four scarfing heads can be seen at the lower right. The scarfing machine itself is a "Lin-de-Surfacer," converted for powder scarfing by engineers of Dominion Oxygen and Linde Air Products, working with Atlas' own personnel.



Architect,	Douglas W. Orr, New Haven, Conn.
General Contractor,	Dwight Bldg. Co., New Haven, Conn.
Glass and Glazing,	Pittsburgh Plate Glass Co., New Haven, Conn.
Photograph,	Patry Carr Studio, New Haven, Conn.

#### There is no Substitute for GLASS!

It is non-combustible . . . won't burn. It is rigid . . . doesn't sag or warp. It has a permanently hard, impervious surface, not affected by time, abrasion or exposure to the elements. It won't corrode or stain. It resists chemicals. It is easily installed, maintained and cleaned by conventional methods.



Send today for free literature, "Coolite Heat Absorbing and Glare Reducing Glass." The sleek, modern lines of the new Grace-New Haven Community Hospital, Memorial Unit, New Haven, Connecticut are partially achieved by Mississippi's 1/4 " Coolite, Heat Absorbing and Glare Reducing Glass. Installed in spandrels, the effect created is that of a continuous, unbroken band of sparkling, blue-green glass across each floor. This is functional beauty at its finest . . . for, in addition to its appropriate usage in this installation, Coolite contributes a truly dramatic and different exterior.

When glazed into conventional sidewall sash and in skylights, Coolite glass floods interiors with soft, pleasantly tinted daylight. All the harsh glare and other unwanted elements of "Raw" sunlight are filtered to make seeing easier. Interiors are cooler, too, for Coolite absorbs 50% of the heat in the sun's rays.

And Coolite is practical . . . easy to clean . . . never wears out . . . never requires painting. Its maintenance is simple . . . its beauty everlasting. In designing new buildings and in remodeling projects, specify Coolite glass by Mississippi and make improved daylighting and greater comfort an integral part of your plans.

> Translucent, light diffusing glass by Mississippi is available in a wide variety of patterns and surface finishes, "visioneered" to distribute light to best advantage.

MISSISSIPP 88 ANGELICA ST. SAINT LOUIS 7, MO.

WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

#### American Credit Insurance

keeps Working Capital working for you!

- 1. Protects working capital invested in Receivables.
- 2. Provides endorsement for banking purposes.
- 3. Backs judgement of Credit Executive.
- 4. Gives positive loss prevention.
- 5. Harmonizes Credit-Sales relations.
- 6. Promotes efficiency in organization.
- 7. Creates confidence—basis of all credit.
- 8. Provides Service for handling collections.
- 9. Minimizes risk and anxiety, promotes planning.
- 10. Endorses customer's promise to pay.
- 11. Gives Accounts Receivable real value.
- 12. Provides accurate cost basis of shipments.
- 13. Helps avoid secondary credit costs.

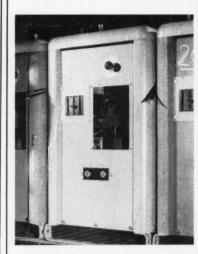
Write for booklet. Address: First National Bank Building, Baltimore 2, Md.

#### American Credit Indemnity Company

of New York

17, N. Y., managers of the exposition and conference, announce publication of the conference proceedings, entitled, *Materials for Product Development—1953*.

Those who attended the conference will receive the 256-page volume free of charge. To others, the price is \$7.50. The exposition itself, of course, can't be captured in print, but there will be a new chance to see industry's basic materials displayed at this year's exposition—scheduled for Chicago's International Amphitheatre, May 17 through 20, 1954.





#### More power in less space

Like the products pictured on pages 54 to 59, Westinghouse Electric Corporation's new DC arc welders are smaller and much lighter than previous models, yet boast several new features, including a new selenium rectifier and an arc drive control. Pictured above (in final stages of assembly) is the 300ampere unit. Also available are 200 and 400-ampere models, and duplex units with ratings of 300/600 and 400/800. In addition to features mentioned above, the new models have aluminum coil windings and axial-flow ventilation, with a top-mounted fan (see lower photograph) to obtain maximum cooling.

# Schnieg Schnieg INDUSTRIAL EQUIPMENT

#### Schmieg DUST and FUME CONTROL EQUIPMENT



Completely automatic Centri-Merge units are designed and engineered to your specific requirements, to maintain the cleanest dust-

and fume-free working conditions. Compact, self-contained equipment occupies a minimum of valuable floor space, saves on upkeep.

#### Schmieg SPRAY BOOTHS



Designed, built and installed to synchronize with your production line. No fire hazard with a

Centri-Merge; overspray carried away in a whirling tornado of water. Safe, clean, efficient, economical; adapted to any conveyor equipment, overhead or floor.

#### Schmieg MECHANICAL WASHERS



Centri-Merge is first step and first choice of plant engineers for high production cleaning, long trouble-free service

at low operating cost. Convenient manual or automatic types for any finishing application.

#### Schmieg INDUSTRIAL OVENS

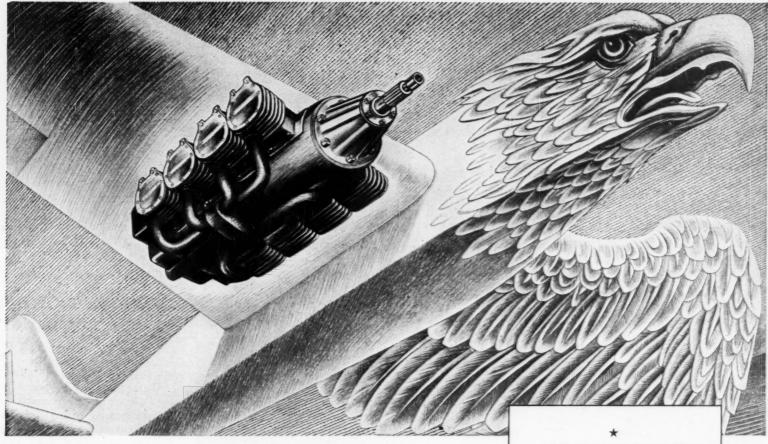


Safeguard your product quality with Schmieg drying and baking-ovens. Every operating essential

operating essential carefully designed and engineered to give you the very best finishing job. Any size, shape or type of oven, conveyor or box, for any installation arrangement.

**Consult Schmieg Engineers Today** 

Schmieg
INDUSTRIES INC.
Engineers & Manufactures
P. O. BOX 4701 - DETROIT 34, MICHIGAN



### How **Lycoming** helps America grow stronger "wings"

Pioneer in the development of air-cooled engines, Lycoming now makes important contributions to jet progress

Over 25 years ago, Lycoming created its first aircraft engine. Today, Lycoming builds 54 different reciprocating engines with a horsepower range from 65 to 1425—including America's only geared and supercharged air-cooled engines in the 400-h.p. class.

In the field of jet power, Lycoming produces high-quality precision parts and major assemblies. From Lycoming come engine components for J-47 jet engines... main leg cylinders for F-86 Sabrejet landing gear... complete gearboxes for J-40 jet engines.

Do you need dependable air-cooled power... precision parts... or any other of the diversified services listed with our signature? Lycoming's wealth of creative engineering ability... 2½ million square feet of floor space... and 6,000-plus machine tools stand ready to serve you. Whatever your problem... look to Lycoming!

#### LOOK AT AMERICA'S LEADERS WHO LOOK TO LYCOMING

\*

AERO DESIGN AND ENGINEERING COMPANY AMERICAN CAR AND FOUNDRY COMPANY
AIR MATERIEL COMMAND BEECH AIRCRAFT CORPORATION CESSNA AIRCRAFT CORPORATION THE CLEVELAND PNEUMATIC TOOL COMPANY DOMAN HELICOPTERS, INC. FOOD MACHINERY & CHEMICAL CORPORATION FORD MOTOR COMPANY GENERAL ELECTRIC COMPANY CENERAL MOTORS CORPORATION—
CHEVROLET-AVIATION ENGINE DIVISION
DETROIT TRANSMISSION DIVISION
CADILLAC MOTORCAR DIVISION INTERNATIONAL BUSINESS MACHINES CORPORATION KAMAN HELICOPTER CORPORATION NAVY BUREAU OF AERONAUTICS NEW IDEA FARM EQUIPMENT COMPANY PIASECKI HELICOPTER CORPORATION PIPER AIRCRAFT CORPORATION PRATT & WHITNEY AIRCRAFT RYAN AERONAUTICAL CORPORATION SYLVANIA ELECTRIC PRODUCTS, INC. THOMPSON PRODUCTS, INCORPORATED U. S. ARMY ORDNANCE WESTINGHOUSE ELECTRIC CORPORATION CURTISS-WRIGHT CORPORATION WRIGHT AERONAUTICAL DIVISION



Just off the press! "THE LYCOMING STORY"... 40 interesting, illustrated pages showing many ways Lycoming is ready to help you. Write for it on your letterhead.

Aircraft Engines, Industrial and Tank Engines, Engine Overhaul, Generating Units

Turbine Engineering and Research, Engineering Design and Development, Hardened and Ground-Precision Parts, Gears and Machine Parts

Complete Assemblies, Heat-Treating and Plating, Steel Fabrication, Castings, Boilers

FOR RESEARCH . FOR PRECISION PRODUCTION

To Lycoming

#### Dear Miss Secretary

We introduce to you here a brand-new Smith-Corona - model "Eighty-Eight" - completely new, and the finest office typewriter we have made in all our fifty years of making fine typewriters.

There are two added keys...four added characters. There are

many other But only effortless

features, many new, many exclusive. your fingers can tell you of the speed, responsive action, feather-

light touch of this superb new typewriter. It will type beautiful letters for you, with minimum work, minimum fatigue. See and try model "Eighty-Eight" at your own convenience, in your own office. Our representative will call by appointment.



#### So many startling NEW features...

you'll find it hard to believe your fingertips!

NEW Instant-Set Margins NEW Colorspeed Keyboard automatic, accurate, fast!

44 keys now standard, with 4 added characters!

NEW "Write" clean, clear, uniform! AMAZING Page Gage takes the guesswork out of page-end typing!

**NEW** Touch responsive, balanced, feather-light!

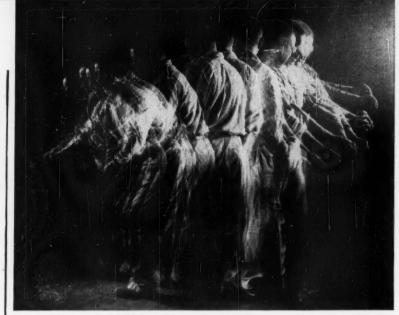
**NEW** Touch Selector range increased by 50%

**NEW** Keylever Action speed where it counts!

**NEW** Type-bar Segment Mounting die-cast, strong, massive, rigid!

The ALL-NEW Smith-Corona

"Eighty - Eight" SECRETARIAL



Doing simple jobs the hard way, these men waste motion, court fatigue.

#### Camera catches



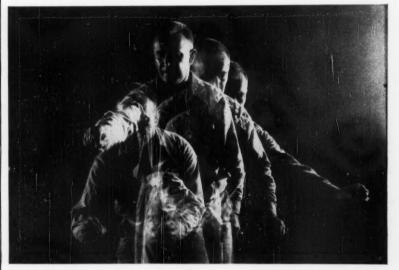
Drum-labeling seems like child's play but it was a motion-waster, as above, until Du Pont engineers designed new method, label kit.

It isn't the work, but the waste motion in so many plant jobs, that brings fatigue and slows output.

That's why alert companies like Du Pont are using every means at their command to uncover and eliminate poor methods and poorly designed equipment that waste time and motion.

In that effort, photography plays an important role. Several techniques are used: A light may be attached to an operator's arm or body, and a time exposure made to show the path of movement. Or, as here, a stroboscopic camera may be employed.

Engineers at Du Pont's Chambers Works, where these pictures were taken, find the camera not only



New way eliminates 70 per cent of the motion necessary to label drums. Kit (on drum) holds supplies, eliminates turning, reaching for stickers.



To find out what these jobs are, and how effort was reduced, see below.

#### Waste Motion

helps uncover waste motion, but also demonstrates savings achieved by redesigning equipment and improving work methods.

The big advantage of camera techniques is that they form a permanent record—one that is well within the means of almost any plant.

Du Pont got extra mileage from these particular pictures through its employee magazine, *Better Living*. It combined plant photographs with similar studies of typical housewifely chores (setting a table, making a bed)—and came up with an excellent article that not only "sells" industrial engineering to plant employees, but also attracts the interest of their wives.



Tank-opening is another oftenneglected effort-waster. Du Pontdevised wheel-operated clamp now makes it a straightforward task.



Job is much easier now that wheel clamp replaces sixteen bolts. Man had to reach for wrench, loosen nuts, disengage bolts, swing cover on pivot.



### Production More Than Doubled by changing to a

#### KELLER RIVETER

An electronic tube manufacturer boosted production from 62 to 155 pieces an hour by installing a Keller Compression Riveter in place of a kick press for staking the pins in vacuum tube bases. This 150% increase, achieved at relatively small cost, is typical of the results obtained by proper application of Keller Pneumatic Tools.

For riveting, staking, crimping, pressing, and marking operations, and for forcing fragile parts into a pressure fit, Keller Compression Riveters have the tremendous advantages characteristic of air power. They give a squeeze—not a slap—and exert maximum power only at the *end* of the stroke. This reduces shock and spoilage from cracked and broken parts.



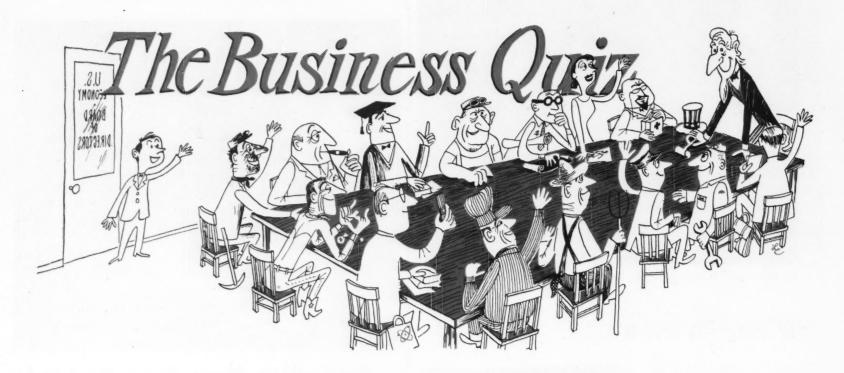


- Air pressure gives a squeeze—not a slap
- Can be operated by foot valve or hand throttle
- Automatic cycle, stops at end of each cycle
- Portable, bench, or pedestal mounting
- Ideal for pressing, dimpling, staking, forcing, or riveting operations



#### KELLER TOOL CO.

**GRAND HAVEN, MICHIGAN** 



When the board meets there are sure to be questions. What's wrong, why, and can't it be made better? Below are some extra questions, but the answers aren't a matter of success or failure in business. Score two points for each correct answer. There's no penalty for a low score but if you go over 80, you're rich in information. Answers are on page 165.

- 1. The sixteenth amendment to the United States Constitution affects just about every person living in this country. Do you know what it is about?
- a) Educational rights c) Income taxes
- b) Citizenship rights
- d) General Welfare



- 2. The apparel industry has a higher percentage of women (75 out of every 100 employees) than any other. But do you know how these industries rate compared to the average (26 out of 100) for all manufacturing industries? (Note "above" or "below")
- a) Ordnance
- e) Leather
- b) Tobacco
- f) Electrical Machinery g) Furniture
- c) Paper and allied products
- d) Food h) Petroleum and coal

3. Many hardness testing methods have been developed for metals and minerals. At least four are named after people. Can you name three of them?

a)	 		
b)			

- 4. Your wife might think you'd gone mad if you gave her these orders, but in a manufacturing plant they make sense. Where-and what do they mean?
  - a) Drain the pickle liquor
  - b) Put on the dog
  - c) Cut off the gate
  - d) Change the worm





- 5. You can get cakes, cones, and glace goods in a bake shop-but in what non-food industry would you find them?
- 6. The total number of businesses in the United States to-day is nearly 4 million. Do you know how many of these are listed on the New York Stock Exchange?
- a) 250-500
- c) 1000-2000
- b) 500-1000
- d) 2000-5000
- 7. Every element has a symbol as well as a number. Can you identify the following symbols?
- a) Na\_\_\_\_\_ d) Sn\_\_\_\_
- b) W \_\_\_\_\_\_ e) Pu\_\_\_\_\_
- c) Sb \_\_\_\_\_ f) Te\_\_\_\_

#### THE BUSINESS QUIZ

- 8. Most of us are familiar with the currency of the United States and who is pictured on the front, but do you know what is on the backs of the following bills?
  - a) \$1
- c) \$20
- b) \$5
- d) \$50



- 9. The amount of money in circulation in this country as of November 25, 1953, was in excess of:
  - a) \$20 billion
- c) \$25 billion
- b) \$30 billion
- d) \$35 billion
- 10. Here's a quartet of triplets. Can you tell what each set has in common?
- a) Fluoroscopy; ultrasonics; magnetic particle
- b) Apron; slat; bucket
- c) Cunife; vectolite; alnico
- d) Gallium; tellurium; thallium

11. "Iso" is a prefix meaning "the same" or "equal". In the terms listed below certain things are "the same". Do you know what they are?

- a) Isobar
- b) Isomer
- c) Isotope
- 12. Some things cost a lot more than others. Which is the least expensive in each of the following groups?
  - a) Titanium Germanium Gallium
  - b) Orlon Dynel Dacron
  - c) Fluorothene Polyethylene Neoprene



- 13. At the left is a list of elements; at the right, important product uses. Can you match them up?
  - a) Germanium
  - b) Palladium
  - c) Magnesium
  - d) Cerium
  - e) Sodium
  - f) Thallium
  - g) Beryllium

- 1) Infrared lenses
- 2) Engine valves
- 3) Transistors
- 4) Geiger counter tubes
- 5) Dockboards
- 6) Lighter flints
- 7) Jewelry
- 14. To be Chairman of the Board is the goal of many men. Below are listed some well-known chairmen. Can you pair them up with their proper companies?
- a) Alfred P. Sloan, Jr.
- b) Francis W. Cole
- c) William B. Given, Jr.
- d) Clarence Francis
- e) Amory Houghton
- f) David Sarnoff
- g) A. A. Stambaugh
- h) Philip D. Reed
- i ) Thomas J. Watson
- j ) Melvin H. Baker

- 1) Standard Oil of Ohio
- 2) International Business Machines
- 3) General Foods
- 4) National Gypsum Company
- 5) Travelers Fire Insurance Company
- 6) General Motors
- 7) American Brake Shoe Company
- 8) Corning Glass
- 9) Radio Corporation of America
- 10) General Electric

## You've convinced your wife

# Now convince your boss!

A Message to Men Who Think They're
Worth \$10,000 or More a Year

Most men think they're worth more money than they make. Night after night—with a kind of pathetic monotony—they complain to their wives of being underpaid, of lost opportunities and "tough breaks."

Usually, they convince their wives—but not their bosses. Yet, organizations everywhere are actively looking for men who are capable of filling positions that pay \$10,000 or more a year...

If you are not enjoying the success you think you deserve, perhaps the Alexander Hamilton Institute can help you. Certainly, you owe it to yourself and your family at least to investigate the Institute's executive-training program, which has been a key factor in the development of thousands of executives over a period of more than forty years.

#### Send for Your Free Copy of "FORGING AHEAD IN BUSINESS"

"Forging Ahead in Business" is one of the most informative and inspiring little books about personal advancement ever written. Its 48 pages are crammed with helpful advice and information about opportunities in business and industry. And it describes the Alexander Hamilton Institute's Modern Business Course & Service fully.

There is no charge for "Forging Ahead in Business;" but only men who are sincerely interested in their business futures are invited to send for the booklet. It holds nothing for the merely curious. If you feel that "Forging Ahead in Business" is intended for you, simply fill out and return the coupon below. Your copy will be mailed to you promptly.

#### ALEXANDER HAMILTON INSTITUTE



ALEXANDER HAMILTON INSTITUTE
Dept. 236, 71 West 23rd Street, New York 10, N. Y.
In Canada: 54 Wellington Street, West, Toronto 1, Ont.

Please mail me, without cost, a copy of the 48-page book—"FORGING AHEAD IN BUSINESS"

Name	
Firm Name	
Business Address	
Position	
Home Address	e



#### **New 1954 Chevrolet Trucks**

New Power! New Economy! New Features you want!

New Chevrolet trucks for '54 are here to do your hauling or delivery job faster, more efficiently and more economically.

To begin with, they bring you thrifty new power in all models. You save time on every trip with extra reserves of high-compression horsepower under the hood—and you enjoy greatly increased operating economy as well.

In addition, these great new Chevrolet trucks offer new and even greater dependability with increased ruggedness throughout the chassis. You'll find heavier axle shafts in 2-ton models . . . bigger, more durable clutches in light- and heavy-duty models . . . more rigid frames in all models. Pickup and stake bodies are plenty rugged, too—and they're roomier for '54!

But that's only the beginning! You enjoy new cab comfort, convenience and safety. Instruments are easier to read... controls are easier to reach. A new one-piece curved windshield gives you greater visibility. The new Ride Control Seat\* lets you drive in relaxed comfort hour after hour, over all kinds of roads. Seat cushion and back move as a unit to "float" you over bumps without back-rubbing.

In another great advance, new Chevrolet trucks offer you the last word in no-shift driving ease and convenience. With proved truck Hydra-Matic transmission\* you can drive all day and make door-to-door deliveries without shifting or clutching. Fact is, there is no clutch!

These are some of the many big new benefits awaiting you in the new Chevrolet trucks for '54. Why not plan to get the whole money-saving story at your Chevrolet dealer's soon! ... Chevrolet Division of General Motors, Detroit 2, Mich.

Most trustworthy trucks on any job!

ADVANCE-DESIGN TRUCKS

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES THREE GREAT ENGINES—The new "Jobmaster 261" engine\* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. NEW TRUCK HYDRA-MATIC TRANS-MISSION\*—offered on ½-, ¾- and 1-ton models. Heavy-Duty SYNCHRO-MESH TRANSMISSION—for fast, smooth shifting. DIAPHRAGM SPRING CLUTCH—improved-action engagement. HYPOID REAR AXLE—for longer life on all models. TORQUE-ACTION BRAKES—on all wheels on light- and medium-duty models. TWIN-ACTION REAR WHEEL BRAKES—on heavy-duty models. DUAL-SHOE PARKING BRAKE—greater holding

ability on heavy-duty models. NEW RIDE CONTROL SEAT\*—eliminates back-rubbing. NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES—give increased load space. COMFORTMASTER CAB—offers greater comfort, convenience and safety. PANORAMIC WIND-SHIELD—for increased driver vision. WIDE-BASE WHEELS—for increased tire mileage. BALL-GEAR STEERING—easier, safer handling. ADVANCE-DESIGN STYLING—rugged, handsome appearance. \*Optional at extra cost. Ride Control Seat is available on all cab models, "Jobmaster 261" engine on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.

MORE CHEVROLET TRUCKS IN USE THAN ANY OTHER MAKE!

#### SALES & DISTRIBUTION

Marketing notes and comments

#### How to build extras into sales by

#### FOREIGN STAFFS AND LICENSEES

Paper company gets results by inviting foreign representatives

bere for first-hand impressions. Other briefs: NAM marketing

panel; exclusive dealers; new data on population movement.



Mechanized paper operation and development of machine applications generally impressed licensees. They were amazed to learn that machine above was designed, built in Italy.

Bags within bags, boxes within boxes, versatility of package designs and the number of items packaged in US supermarkets (including provolone, below) were other eye-openers.



THE EXPORT division of a firm typically has a harder time communicating with and controlling its staff abroad than does its domestic counterpart. If the operation is managed, semi-autonomously, in the plants overseas, the parent company still faces the problems of translating domestic policy into realistic terms for a number of different operating conditions which will, somehow, dovetail harmoniously with over-all policy.

The problems are often multiplied when a company licenses foreign firms to produce under contract. Since these contracts normally involve a fee based on volume, the US firm is anxious to promote sales by the foreign company, but it has no authority beyond the power of suggestion to do so.

It has been common practise for some years to supply the licensee with reams of technical information, but only recently a number of firms have been including in their mailings sales information similar to that furnished their domestic sales staff, information relating to new applications, potential markets, sales training, and the like.

The St. Regis Paper Company is one of those who have been actively promoting foreign licensee sales. Recently, to supplement its printed bulletins and sales contacts by the foreign manager, the company invited 20 licensees from half as many countries for a tour of their plants here and a close study of applications on the site in customers' plants.

The paper company's top sales people noticed a new trend of interest in promotion, advertising, and sales techniques. On previous trips (prewar), the major topics and questions were in the production and technical areas. On this junket, the foreign representatives were vitally interested in market development. Some examples:

The licensees were amazed by the extensive use of color on the bags and other containers. Said Australian licensee Boden, "We're used to treating bags as carriers. You make them sell like road signs."

They were equally amazed by the develop-



#### As easy as falling off an unstrapped pallet

You need steel strapping on every pallet load, whether it is handled intra-plant or shipped by carrier. You need it for protection to your workers, and the prevention of loss and damage to your shipments.

And—you need SIGNODE! Through its fieldmen, Signode can show you how to palletize the right way, no matter what you handle or ship. The services of these men and Signode's

respected packaging laboratory are yours for the asking. Write Signode Steel Strapping Co., 2665 N. Western Ave., Chicago 47, Ill. Offices coast to coast. In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto. Foreign subsidiaries and distributors world-wide.

A basic method of preventing accidents to pallet loads in intra-plant bandling.



### SIGNODE Steel Strapping Co.

SEND FOR FOLDER SHOWING 6 BASIC WAYS OF UNITIZING

ment of market statistics and the intra-industry flow of trade and production data for which there is, apparently, no equivalent abroad. The very fact that visitors can walk freely through most manufacturing plants picking up ideas on materials-handling techniques almost at will was another eye-opener.

St. Regis thinks the trip accomplished two objectives. It gave management here the invaluable opportunity to talk personally and tackle problems with key personnel they have never met face-to-face before. And it gave the licensees an opportunity to analyze, first-hand, developments in marketing and technology which they have only read about in the past.

#### Marketing questions and answers by experts

Though the distinguished panel at last month's NAM conference were not able to wrap up their topiç (integrating the marketing team) in a neat package, many of their opinions were interesting and important. Here are some samples: Asked about the role of market research in the product planning field, researcher Elmo Roper replied that, within limits, it will show what to make and how to price it. Public opinion is most accurate when it indicates what it doesn't like-people can tell you what they don't like about what they're getting but they are less reliable when they report their preferences about a

product that's not yet on the market.

Asked why many firms play down a formalized public-relations program in their marketing strategy, President Ben Duffy of BBD&O replied in one word, "Ignorance," amplified by "They don't know how to use it." Elmo Roper pointed out that this is mainly the fault of the PR staff itself. They have failed to convince management that the reputation of the company as a corporate citizen has an effect on the value of the goods the public is willing to buy.

Asked if co-operative advertising were worth-while, Duffy said that in some cases it's a necessity. But, he emphasized, the manufacturer must have complete control of both the money and the medium and added, "If you can get along without it, you're better off."

#### Graduate fellowships build research, sales

Scholarships at the college level are getting most of the publicity but a number of companies are taking the logical step beyond this and furnishing the necessities for postgraduate education.

Monsanto Chemical Company just established a two-year graduate fellowship in a Southern technical school for advanced study of textile technology.

General Electric's long-established research grants program for study in the fields of the physical sciences, engineering, and industrial



Mobile school backs up sales with better service

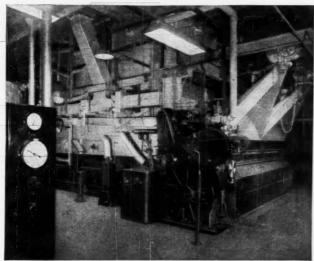
Recognizing that it is a rare dealer who can spare mechanics and service personnel for a period at the plant, the Clark Equipment Company is sending an over-the-road, tractor-trailer unit to

visit the local Mohammeds. The unit is equipped with cutaways, movies, slides, study material, and a p.a. system. The program is designed to brief customer service people, too.



# NATIONAL CASH REGISTER SAVES \$70,000 A YEAR

WITH MODERN COAL EQUIPMENT!



One of the two new boilers used to supply base steam loads for NCR's plant. Older pulverized coal boilers handle swings.

**Before you build** a new plant or remodel your present one, let a consulting engineer show you how a modern bituminous coal installation—tailored to your needs—can save you money.

With modern coal-burning equipment, you can save from 10% to 40% on steam costs.

Automatic coal- and ash-handling systems can cut your labor costs to a minimum.

You're set for the future, too, with coal. Coal reserves are virtually inexhaustible. America's highly mechanized coal industry is the world's most efficient. Thus you are assured of a dependable supply of coal, at relatively stable prices, for years to come.

#### BITUMINOUS COAL INSTITUTE

A Department of National Coal Association Southern Building, Washington 5, D. C. NCR recently installed two modern, stoker-fired boilers in their Dayton, Ohio plant.

They supply the major part of the steam used in generating power for 28 factory buildings and heat for nearly 72 acres of floor space. The savings made have convinced NCR that for high efficiency and low costs, you can't beat an up-to-date bituminous coal-fired installation.

**Big Loads!** Loads run up to 300,000 lbs. per hour. Annual coal consumption is about 60,000 tons.

No smoking allowed! Located near a residential area with strict control regulations, National uses dust collectors and smoke recorders to make coal clean and convenient.

Additional case histories, showing how other types of plants have modernized and saved money with coal, are available upon request.

#### If you operate a steam plant, you can't afford to ignore these facts!

- BITUMINOUS COAL in most places is today's lowestcost fuel, and coal reserves in America are adequate for hundreds of years to come.
- **COAL** production in the U.S.A. is highly mechanized and by far the most efficient in the world.
- COAL prices will therefore remain the most stable of all fuels.
- COAL is the safest fuel to store and use.
- COAL is the fuel that industry counts on more and more—for with modern combustion and handling equipment, the inherent advantages of well-prepared coal net even bigger savings.

YOU CAN COUNT ON COAL!

#### HAPPY-HEALTHY WORKERS ARE Better WORKERS



# How many wrong sides of the bed" among your employees ?

A lot of things can happen to cause a bad start on a working day. Perhaps Mom wants to take the kids to the country for a week to get away from the heat but the bread-winner figures he can't afford it or doesn't like to give up the use of the family car. So there's



an argument. Or maybe he just had a sleepless night.

Whatever it is that causes employees to get up on the wrong side of the bed, it's reflected in their work.

Now take a firm that has established a factory, warehouse — or whatever it might be — in the Union Pacific West.

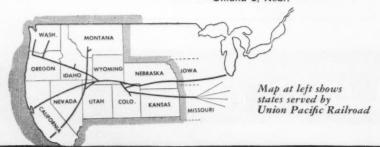
Chances are that only a short way from home, there's a spot for hunting or fishing. You don't have traffic jams. The climate is agreeable. Children grow up healthy. Everything makes for pleasant living conditions and that goes for the "top brass," too.

Naturally, in seeking a new industrial site there are many other factors to be considered depending on management's requirements. Somewhere in the vast "Union Pacific West" you'll find what you want.

However, we'd like to emphasize the point that any successful operation is largely dependent on the mental attitude of employees. There are fewer labormanagement problems when workers are contented.

May we help you select a site in the eleven-state area served by Union Pacific. Just ask the "U.P." man who contacts you, or write—

INDUSTRIAL DEVELOPMENT DEPT. Room 299, Union Pacific Railroad Omaha 2, Nebr.



UNION PACIFIC RAILROAD

management will cost the company almost \$33,000 in tuition and maintenance for eleven researchers for this academic year.

The program of the Celanese Corporation of America sends 20 graduates back to the universities for more work in the sciences, including those of interest to Celanese.

There is more behind these programs than an efficient public-relations department. The chief spur is the paucity of trained researchers and competent scientists to develop new products and engage in basic research, both vital to an expanding economy. Another disturbing behind-the-scenes influence on post-graduate scholarships: Only one out of five scientists and engineers ever goes into research.

#### Marketing briefs

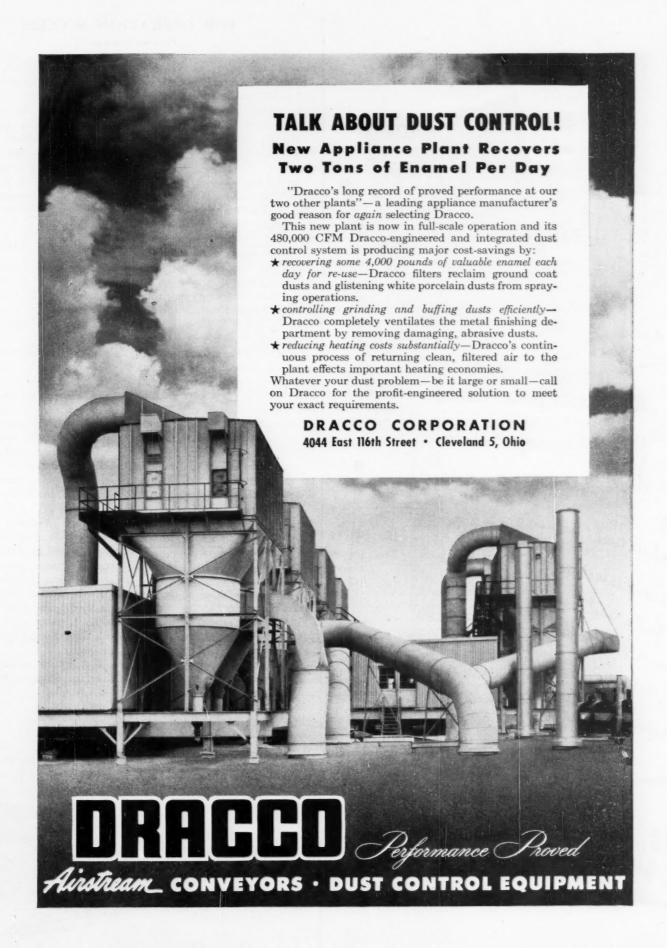
- A company doesn't often offer its customers to competitors free of charge. However, when the Du Pont Company decided to cease manufacture and sale of lithopone pigments by the end of next month—to concentrate on titanium dioxide—it pointed out that customers could obtain all of the Du Pont grades except "Ponolith" from other manufacturers. Then, going whole hog, Du Pont offered other producers complete technical information on Ponolith—free.
- A smart Celanese Corporation promotion of its Normal Propyl Alcohol includes along with a magazine advertisement reprint an unusual memorandum, subject: Insurance Premium Reduction. The note mentions that your insurance manager probably will not read the advertisement and sugggests bringing it to his attention because (a) the solvent may reduce your fire insurance premiums and it (b) may reduce your customers' premiums too.
- Plugging for dealers who handle a single line, Marketing Vice-President McDaniel of Hotpoint Company told his distributors and salesmen that exclusive dealers:
- 1. Receive full merchandising support of the manufacturer and distributor.
- 2. Realize more turnover per invested dollar, better inventory control and discounts on carload lots.
- 3. Are identified as headquarters

- for one line, more pull on local tie-ins.
- 4. Have better trained salesmen because one line is easier to learn.
- 5. Have less need to spread the advertising dollar.
- The need to prod dealers to keep their direct-mail lists up-to-date is emphasized by a December census report. The Bureau reports that during the year ended April 1953, roughly 31 million persons changed their addresses. That's 20 per cent of the population over one year.
- More marketing data. The latest census report on value added by manufacture shows that the Pacific region (Washington, Oregon, California) nosed out the six New England states during 1952. During that period the Pacific area boosted its value added by manufacture by over 12 per cent, as compared with a national average increase of 6.3 per cent. At the other end of the scale, the four East South Central states (Kentucky, Tennessee, Alabama, and Mississippi) fell off 1 per cent.
- Not new but important. Dravo Corporation, Pittsburgh, has gotten out a booklet designed to service visiting salesmen. It runs over quickly and neatly the major divisions and their products. Then it lists, with photographs, personnel in the purchasing department and describes precisely what materials each specializes in.



Egg-nog's answer to decanters

Shrewd packaging helped put over the holiday promotion above. Square bottle fits snugly in refrigerator; plastic carton is standard refrigerator box.



### FI 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 10:30 Browne-Morse Salesman auch with Exclusive feature-eliminates excessive wear 3.R.B. Ball running ratios-Load equally "natural touch" handler unterchanging at all times of the arm at all parts of Board Meeting drower with 90 lb. load drower with drower heights - legal & letter sizes 1-3.4.5 drower heights - legal & letter sizes 100 year we test slowed no meloswroble wear Sounds like a GOOD deal

#### FOR OPERATION SUCCESS

Continued from page 35

purposes and general objectives of any business organization. The second phase embraces the follow-on and ever-changing rationalization and detailed planning necessary to successfully realize the stated objectives within a stipulated period of time.

Viewed one way, the two phases actually constitute the time-honored, chicken-and-egg sequence. In this case the egg is regarded as the objectives, from which must spring the chicken which is defined as successful planning. Taken alone, neither are of particular value or significance. Accomplished in inverse order the value of each is surely to become diffused.

The task of getting a definable purpose and set of objectives can be stated in absurdly fundamental terms. The vast majority of industrial enterprise has been created to make money. However, this rudimentary definition is of no real value in assisting in the very real chore of actually making the money. If, as a matter of fact, it is used as the sole guide it may well produce disastrous results.

With respect to the first part of the subject, there are eight significant points around which any outline of purpose and statement of objectives should be built:

- 1. Profits desired.
- 2. Internal endeavor required to realize the profits.
  - 3. Markets to be exploited.
  - 4. Obligation to customers.
  - 5. Obligation to stockholders.
  - 6. Obligation to employees.
  - 7. Obligation to community.

8. Ethical standards for the conduct of all phases of the company operation.

Development in concise and meaningful terms of the eight points just mentioned provides the common knowledge and understanding that is so mandatory to success in planning. It is the tangible basis for management teamwork directed toward a common goal.

#### Follow Through

The task of developing the objectives belongs to anyone in an organization that can properly be identified as part of management. As a practical matter, a broad outline of the purpose and objectives must be prepared at the top of an organization. The outline then being handed down and back through the lowest possible level so that all of the best thinking and competence available within a company are utilized in its further development or expansion. Long and studied consideration should be afforded the results by the president, his principal officers, and finally the board of directors.

From this endeavor there should emerge a document, the context of which would separately enumerate both the primary purpose and general objectives of the company.

In the primary purpose category the significant areas covered are outlined below:

- 1. Geographical limitations of the business.
- 2. Acceptable economic and political conditions under which ac-





When Tractor Hydraulic System

#### has a **Balanced Vane Type Pump**

Under the very best conditions, cold weather puts a strain on starting equipment. Every part of the engine is stiffer, and the cold seriously decreases the power of the starting battery. If the hydraulic system has a pump with fixed teeth or lobes, this starting load may be seriously increased above normal.

Vickers Balanced Vane Type Pumps start at practically no load. At rest and at normal starting speeds, the sliding vanes are retracted . . . only after the engine fires do the vanes extend and pumping begins. As a result, cold weather starting is much easier when a Vickers Vane Type Pump is used.

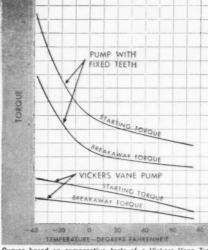
Get in touch with the nearest Vickers office for full information.



(Left) Schematic diagram of Vickers Balanced Vane Type Pump showing how sliding vanes are retracted at normal engine cranking speeds. No oil is pumped and there is practically no starting load.

(Right) Similar diagram of Vickers pump showing how pump vanes are extended when engine is running. Pumping then begins and continues at all engine speeds.





Curves based on comparative tests of a Vickers Vane Type Pump and an equal capacity pump with fixed teeth. Oil used in both was SAE 10W premium grade.



Vickers Balanced Vane Vickers Balanced Vane
Type Pumps for mobile
equipment are available
in five basic sizes, 15
normal delivery
ratings and a
variety of mountings. Ask for new
Catalog M-5101.

6628

VICKERS Incorporated DIVISION OF THE SPERRY CORPORATION

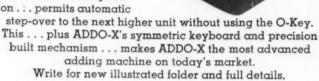
1424 OAKMAN BLVD. DETROIT 32, MICH. ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Application Engineering Offices: ATLANTA • CHICAGO (Metropolitan) • CINCINNATI • CLEVELAND • DETROIT • HOUSTON • LOS ANGELES (Metropolitan) NEW YORK (Metropolitan) • PHILADELPHIA (Metropolitan) • PITTSBURGH • ROCHESTER • ROCKFORD • SEATTLE • TULSA • WASHINGTON • WORCESTER



And there's nothing like
the new ADDO-X...
with the plus feature SML\*
... to handle them for you
with speed, accuracy
and complete simplicity.
But that's not all!

The exclusive STEP-O-MATIC LEVER makes the ADDO-X a calculator as well ... when used for multiplication ... permits automatic



\*STEP-O-MATIC MULTIPLIER LEVER

ADDO-X puts your figures in order

ADDO MACHINE CO., INC.

145 WEST 57th STREET, NEW YORK 19, N. Y. CIRCLE 5-6940

Exclusive U.S. Distributors; Addo-X Adding Machines

Multo Calculators — Roneo Mimeo Machines

tivities of the company would operate.

3. A general statement of basic product lines.

4. A general statement of limitations with respect to product lines not now manufactured but which may or should be undertaken at some future time.

In summary, general objectives would be treated in the final document as follows:

1. A general statement with respect to the operations of the company to include an unquestionable level of integrity, product quality, technical skill, and dependability.

2. The minimum acceptable profits to be expected.

3. The markets to be undertaken.

4. General rules governing the establishment of product lines, to cover the complete line consideration and standards for manufacturing.

5. A general statement with respect to sources of supply.

**>>>>>>>>>>>>>>** 

The AUTHOR

CLINTON F. ROBINSON, President of the Carborundum Company, has had a distinguished career in the army as well as in business. A graduate of West Point, he holds engineering degrees from that institution and from Cornell University. Following a period as mathematics instructor at the Academy and a term with the United States Corps of Engineers, he became a member of the War Department General Staff.

During the war years, he served with the War Production Board and was active in theater logistic operations in Europe and the Pacific. He retired in 1948 as a Major General.

General Robinson maintained connections with the Government after his retirement as assistant to the Secretary of Defense and also as assistant to the Chairman of the National Security Resources Board. He assumed his present position in 1952 and holds directorships in the American Metallic Corporation and the Fansteel Metallurgical Corporation.

**>>>>>>>>>>>>** 

6. A general statement with respect to company organization, principles, distribution, practise and related considerations.

7. A general statement with respect to the conduct of a research program.

8. General statement with respect to finance, to include consideration of working capital, utilization of funds in excess of the operating needs, the company debt conditions and dividends.

9. General statement with respect to personnel, to include levels of employment, morale, enthusiasm, wages and salaries, training, career

### For IDEAS on HOW TO CUT PRODUCTION COSTS

with oil-hydraulic equipment



### -start with DENISON FIELD ENGINEERS

PLANNING NEW EQUIPMENT?
Looking for a new way to meet some specific problem? Then it's time to get the facts on how oil-hydraulics can cut production and maintenance costs wherever you need controlled power, pressure, or motion.

Denison Field Engineers, with their

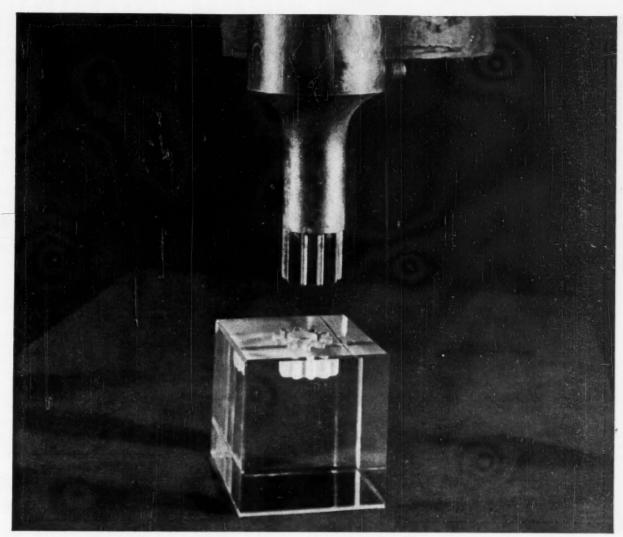
Denison Field Engineers, with their wealth of production experience, can give you important advice and information on plant-proved HydrOlLic installations covering a wide range of needs. Their counsel is absolutely

free of obligation.

Denison makes a carefully designed line of oil hydraulic pumps, motors, and pressure and directional controls for circuit needs up to 5000 psi. For production operations requiring accurately controlled presthe Denison Multipress offers smooth hydraulic power to cut costs, save time, improve quality, reduce scrap, lower noise level, and make the operator's job safer, simpler, easier. Multipress is available in nine frame sizes . . . one-ton to 75-ton capacities, and with controls, automatic feeds, index tables and other accessories for a variety of requirements. Your Denison Field Engineer has the complete story — or drop us a line, we'll gladly send along descriptive information.



The DENISON Engineering Co. 1211 Dublin Road, Columbus 16, Ohio



**Using high-frequency vibrations** and low-cost abrasives, the Cavitron Ultrasonic Machine Tool carves holes and patterns of all shapes in hard-to-work materials. Development of the tool climaxed more than 10 years of research and experimental work by the Cavitron Equipment Corporation, of Long Island City, N. Y.

#### How SILENT SOUNDS CUT HOLES you can't drill

This common steel gear bites its way into a glass cube as smoothly as it would mesh with its mate.

And that's *something*, for chiseling through glass is quite a trick, even with a tool designed for the job.

Yet, as you can see, it's being done right here. And the machine that does it can also sharpen the hard metal tools used to cut other metals. It can cut diamonds without the use of diamond powder. Some day, it may even eliminate the heatgenerated pain caused by your dentist's whirling drill, or provide a vastly improved method for breaking up kidney- and gallstones.

Now how does this revolutionary tool work? By ultrasonic vibration.

It vibrates 27,000 times a second! Every vibration pounds waterborne abrasive against the surface you're cutting, and steadily chisels away tiny particles.

It took time to produce and control these vibrations. Over 10 years of research and trial-and-error experimentation! Then—with the help of Inco Nickel — the successful method was perfected.

Pure nickel, when placed in an electromagnetic field, contracts much more than other commercial metals, and returns to its original length. (Physicists call this "magnetostriction.") It is this motion—stepped up a hundredfold—that produces the vibrations which give

the tool its bite.

There are many similar useful qualities found in Inco Nickel Alloys. Between them, pure nickel and Monel provided the key to the problems of the ultrasonic machine tool. Another of our metals may help to open a door now locked to you. Let's get together and work out that problem of yours—soon.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N. Y.

#### Inco Nickel Alloys

Monel® • "R"® Monel • "K"® Monel "KR"® Monel • "S"® Monel • Inconel® Inconel "X"® • Inconel "W"® • Incoloy® Nimonic® Alloys • Nickel • Low Carbon Nickel • Duranickel®



terials from coarse, heavy lumps to fine powders. Handle up to hundreds of tons per hour on continuous production schedules with little or no maintenance.

SYNTRON Equipment saves on installation costs—increases production.

POWER CONVERSION UNITS



Complete d-c power conversion in one compact installation. Up to 300 KW capacity; no warm-up required.

ELECTRIC VIBRATORS



Pulsating magnet vibrates 3600 times per minute to keep bulk materials flowing freely through bins, hoppers and chutes. SHAFT

Assure efficient, controllable, low cost handling of most bulk ma-



Self-lubricating, mechanical seals for rotating shafts. Provide positive sealing of gases and liquids. Corrosion resistant. FEEDERS

Provide automatic, oriented, single line feeding of small parts to automatic machines. Increase capacity for production handling.

It will pay you to inquire how Syntron Equipment can help you reduce production and maintenance costs.

Write today for complete catalogue data—FREE

SYNTRON COMPANY
774 Lexington Avenue Homer City, Penna.

advancement, safety, working conditions and welfare.

10. General statement with respect to public relations, to include perpetuation of the company's reputation, its standing in the community, and sale of its products.

Having developed the primary purpose and general objectives of the company, a firm set of ground rules is therefore provided for the necessary detailed planning. As previously indicated, the methods and approaches to the follow-on planning may vary, and sometimes widely. Nonetheless, there is a system of programming which, when completely developed, is certain to make the well-defined purposes and objectives into a reality.

#### Detailed Work

This system of planning is on a five-year program basis. The program is "sliding" inasmuch as it is reviewed annually and at each revision another year is added. It is most detailed and exact for the first year of the period. Balance sheets, sources and application of fund statements, capital expenditures, research projects and expenses, and so

on are the type of detail utilized for the first year's program. The following four years are based upon trends which are actually the best estimates with respect to sales dollars available to the company, the cost of producing these sales, the profit ratios involved, and projects involved in making the sales possible.

During the construction of the initial five-year program, and at the time of each annual revision, two guideposts are employed. First, the statement of "Primary Purpose and General Objectives" in order to keep all controlled activities of the company on the track previously determined to be the most desirable. Secondarily, a "Concept of the Future" is utilized. This Concept is prepared annually prior to programming activities. On the one hand, the Concept attempts, so far as it is humanly possible to do so, to collect and analyze the outside uncontrollable factors influencing the business-the "guiding stars" previously alluded to. On the other, the Concept presents all of the controllable projects and trends that are going on outside of the com-

ROURA
Solf- Dumping
HOPPERS.... SAVE TIME and MONEY



The business principles that stand behind a product's manufacture mean more than just selling any one job. Roura Hoppers are ruggedly built, not to only carry the load, but to stand up under the abuse that all materials handling equipment receives from average lift-truck operators. We have found that it's not the load that destroys equipment but the use and manner that lift-truck operators have of banging into all equipment of this type.

Slash production costs . . . get these 4 plus features: 1. Submerged arc welds that are "stitched" with the same apparatus used for "stitching" high pressure steam boilers, assuring long life; 2. Exclusive, patented instant release handle; 3. Simple, safe material handling; 4. Quality-built, it pays for itself fast many times over. Handling wet or dry, hot or cold bulky materials quickly and easily, Rouras require only one man for distributing and unloading—he does it in a lot less time than under old fashioned methods.

Sizes  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $\frac{1}{2}$  and 2 cubic-yards. Rouras are built to fit either fork or platform type lift-trucks. Can also be had with special combination fork-platform skid, or with a live skid. Can be equipped with special flanges to permit stacking for storage or future distribution of materials, solving floor space limitations.

ROURA IRON WORKS, Inc.

oodland Ave Detroit 11, Mich

- Can Be Coated With
Acid-Resistant Paints

Ville today for detailed brochure, "In Dollars & Sense."

and

### Remington Rand Methods News

#### More Plants Slashing Maintenance Costs...Keeping Production At Peak

New Booklet On Preventive Maintenance Gives Flow Chart For Effective Control



Are more than 5 out of every 100 of your production workers doing plant maintenance? That's what a recent survey of manufacturing plants in the U.S. established! Is it any wonder that the latest developments in Preventive Maintenance Records, displayed at the Plant Maintenance Show held in Chicago in January, attracted sensational interest?

If you missed that exhibit, send today for our new free booklet X1383, showing in detail just how a planned maintenance control system works...how easy it is to install in your plant...how it insures maximum equipment productivity at greatly reduced operating cost.

These methods visually indicate what inspections are needed...permit scheduling of work ahead. Every man's time can be planned for maximum efficiency. Simplified visible methods provide tight control with paperwork streamlined to an absolute minimum.

The requirements of any such system are the same regardless of the size of the work force. They should include all of the following:

1) Written Work Orders 2) Scheduled Work
3) Equipment Records 4) Stores Control 5) Executive Reports.

Actually, maintenance management simply can't do a bang-up, cost-conscious job without a planned system with effective records providing all the facts for making sound decisions. The system offered in our booklet virtually gives you those facts at a glance!

Get this new booklet today. Study the flow chart showing effective Planning, Performing and Controlling of a Maintenance Program. See illustrations and descriptions of basic records which well-known plants are successfully using to put their maintenance operation on the same efficient basis as other operating departments. Ask for X1383.

#### Punched Cards Can Help Medium-Sized Plants, too!

One west-coast tool manufacturer, with 675 employees, centered all its production-control, cost records, payroll, inventory control, sales analyses and special reports in *one* 5-clerk department with punched-card procedures.

In sales analyses alone punched cards gave them a report that previously took 37 days, in the amazingly short time of 3 days! In the words of their chief accountant:..."it would have been difficult to operate with anything like our present efficiency, without these economical and complete accounting controls." See Certified Report 804.

#### Do Your Files and Filing System Need Modernization?

It has been proved that 65% of the file records in the average company are useless...take up valuable space...slow down efficiency of the organization. It may pay you to call in a Remington Rand specialist and have him analyze your record-keeping problem. He has showed many leading companies how to increase efficiency and save lots of time and money. And this service is performed without disturbing or interrupting your daily operations in any way.

Our Business Services Departments recently made just such a study at the Newport News Shipbuilding and Drydock Company. Result: 60 years' accumulation of records are now streamlined and systematized... future expansion provided for... at great savings in money, space and clerical help. Reference is simple, whether it be to Hull No. 1 completed in 1891, or the new United States... which job alone, an official states, would have "buried" the company under "an unmanageable sea of paper" but for the "work done by Remington Rand experts." Read this interesting Certified Report written by an official of Newport News Shipbuilding. Ask for CR850.

### Timken Roller Bearing Effects Big Savings Using Kard-a-Film For Personnel Records

Let this Certified Report written by an official of the Timken Company show you why personnel records need to be kept indefinitely... how an ordinary file drawer which formerly held 3,000 to 4,000 letter size records, now holds 250,000 documents!

Further, how Kard-a-Film records filed under the Variadex system makes for such speed of filing and reference that Timken now actually locates a "dead" personnel record as easily and quickly as one in the active file!

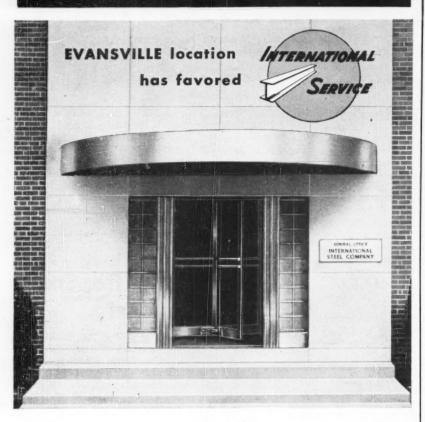
Read how Timken first tried microfilm on conventional reels only to find these unsatisfactory for a personnel records file. Kard-a-Film holds microfilm records on cards—all grouped by a particular subject rather than isolated on a number of different microfilm spools. Documents no longer used can be kept up-to-date. Kard-a-Film Reader shows the



records actual size right from the card and makes accurate inexpensive reproductions. Your personnel records are important to your company, your employees and others in your plant town get the benefit of Timken's experience. Get CR367.

K00m 1588, 313	5 Fourth Ave., New York 1
Please circle th	e literature you desire:
X1383 CR	867 CR804 CR85
Name	
Title	
Firm	
Firm	

#### Looking for a profitable plant site?



IN MORE than forty years of operation, International Steel Company has experienced only one work stoppage by its employees. More than 40% of the workers have been on the payroll ten years or longer. The people of Evansville are not "floaters."

ers."

The main specialties of International Steel are revolving door entrances and aircraft hangar doors of ingenious application. Also, about three years ago, facilities were added for a new division to fabricate railroad car components; significantly, no consideration was given to any other location for the new division.

36 welded assemblies, half of them 20 feet square, were delivered via inland waterways from Evansville to the Pickwick Landing dam of the TVA system.

because of satisfaction with Evansville conditions.

In custom fabrication of structural steel, International Steel Company has an enviable reputation for its skill in meeting difficult specifications. The location of Evansville on the inland waterways is frequently advantageous, for economical shipments of materials inbound and finished products outbound. A spectacular example was the otherwise impractical fabrication and delivery of the huge strainers (ingloriously termed "trash racks") to protect the turbine blades in hydro-electric generators at the Pickwick Landing station of TVA. 36 welded steel assemblies were supplied, half of which measured 20 feet wide and 20 feet high!

The total shipment, weighing 252 tons, was delivered by barge from Evansville to destination. No other form of transportation would have been feasible.

If YOU are concerned about (a)

If YOU are concerned about (a) favorable labor conditions, (b) central distribution center or (c) economical transportation, you could benefit, as has International Steel Company, by location in Evansville. May we tell you more? The evidence is yours for the asking . . . and you can be sure we will respect your confidential inquiry. Make a note of it . . . NOW!

line at stipulated dates in the future, and the estimated impact of, say, to-day's training on next year's sales.

In addition to the specific guidance made available for programmers in the Objectives and Concept.

pany. Illustration of the latter cate-

gory would be the probable effects

of company research on its product

In addition to the specific guidance made available for programmers in the Objectives and Concept, there is an unalterable ground rule to be followed. All programs must be realistic and susceptible of reasonable attainment. Use of this axiom as against the philosophy of "hay before the donkey" avoids the hazards of effort diffusion and morale impact that haunt the unsuccessful overoptimist. It should be noted, somewhat wryly, that the reasonable approach must be carefully watched lest it, too, become a cropper in the other direction.

#### Consolidation

On the basis of this Concept, and within the limitations established in the General Objectives, every operating segment of the company builds a five-year program. After study, approval, and consolidation there becomes one major program to guide the five-year operation of the company. During the course of consolidation each individual program must be balanced and adjusted with all the others to insure feasibility, not only from a financial standpoint, but also in light of limitations that may exist with respect to research capabilities, personnel, facilities, or any other pertinent reason.

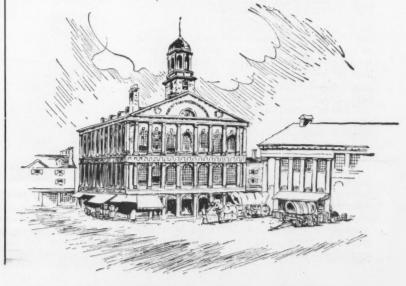
As a result of this work there is developed for every element of the company tangible and identifiable tracks along which it must run. These "tracks" are in reality a set of programs covering the following major activities noted below:

- 1. Sales.
- 2. Cost of sales.
- 3. Cost of products sold.
- 4. Administration.
- 5. Capital expenditures.
- 6. Advertising and promotion.
- 7. Research.
- 8. Product development.
- 9. Career development and personnel recruitment.
- 10. Training.
- 11. Profit.

It would not be proper to conclude without mentioning a most important offshoot of the programming activity. In the application of the programs to all major operations there is provided through periodic reports a yardstick for measuring accomplishments toward the desired objectives both long and short term. Through this means, trouble areas may be flagged and firm action taken toward problem identification and solution. Constant surveillance of actual performance against a reasonable but progressive program, is the most positive way available to assure ultimate SHICCESS

A concluding reference should be made as to the size that a business should attain before its activities are programmed. It can be said that no enterprise is so small that it should not have available a well thought out and defined purpose. Similarly, specific plans, formal or otherwise, should be available somewhat above the level of a desk drawer to provide success to the purpose. Short of the fact-finding "operation bonanza," planning techniques are the life blood of any industrial enterprise.

THE END





EVANSVILLE INDIANA

"BALANCE POINT, U.S.A."



#### PROGRESS through Participation

JAMES C. PENNEY
Chairman of the Board, J. C. Penney, Inc.

HE PROGRESS of America has always been based upon a system of free enterprise carefully integrated with teamwork. Continued progress depends in large part on the progress of each individual community and that rests upon the shoulders of every citizen, be he business man, local council man, or the next door neighbor. Free men applying joint action can do much to better their communities and thus strengthen their country economically, socially, and intellectually for the good of all.

E AMERICANS can look forward to a brilliant future and a higher standard of living if we are willing and able to work together intelligently and constructively. The wizardry of science and the vision and genius of business and devoted political leadership can carry us far along the road to unheard-of prosperity and to an interesting well-rounded life.

The economic health of the nation requires:

1. A withdrawal from the overgrown tendency toward loose spending and the needless piling up of debt. Whatever may have been accomplished by a stiffening of fiscal policy and the introduction of many economy measures, there remains much to be done in that direction.

2. Restraint on the part of organizations and



communities in the matter of seeking federal aid for projects which can and should be financed locally. Grants-in-aid to communities and states amount to more than \$2 billion a year, and that is no trifle.

3. Positive, aggressive, and constructive group action by individuals in our many communities to do things for themselves, to develop better home towns, to improve cities, towns, and villages in ways that will contribute to better economic conditions and better living.

These are the objectives of the National Council for Community Improvement, a non-partisan, non-profit organization, established in August 1947 by 60 national associations, sponsored by public-spirited business executives and lead-

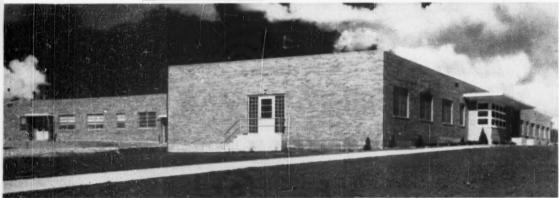
ers in other major groups of American life.

During the past two years the National Council has conducted a crusade with meetings in major cities arranged by leading business men and educators.

Through the splendid co-operation of newspapers, magazines, radio, and television, the officers of the Council have been enabled to spread this message to an estimated 40 million people.

There is a growing sentiment for local community enterprise and local self-reliance—a principle vigorously advocated by the Council during the six years of its existence. State and community leaders in many areas have strongly endorsed this principle. Field work of the Council in fourteen states has enabled the organiza-





SHELDON MAIL PHOTOGRAPHS

Community improvement can take many forms, and health and education are two of the most important areas where help is needed. It should come from the local citizens. In Sheldon, Iowa, community co-operation has resulted in the construction of their Junior College (top) and the Community Memorial Hospital (bottom). In many other localities throughout the country steps are being taken to provide practical memorials to co-operation.

tion staff to discuss the program with state and community leaders and to establish a basis for organization of local units. Pilot state and community councils have demonstrated the vitality and effectiveness of the program.

The general fiscal state of the nation is known to all who have even the most meager knowledge of government finances. It is by no means hopeless. But the situation calls for patriotism, thrift, sacrifice, self-denial, and a willingness to work for the common good.

Self-interest groups are not to be deplored, for individuals, as such, cannot be very effective in presenting their needs. The desires of groups must be presented to the representatives of the people as group expressions. However, when self-interest organizations exert strong pressure for special appropriations that help the few and hurt the many, harm develops. Many such pressures can eat away the foundations of our economic structure.

In this sector of our national life, there is a great need for wisdom, patriotism, and community responsibility. There is neither space nor need to enumerate here the many opportunities to improve our economic condition. It is enough to say that spending pressures on Con-

gress must be carefully evaluated—that numerous projects can better be initiated and financed locally. Dependence is a dreadful disease. It is insidious. It robs the individual of the will to do things. Unnecessary and unjustified dependence undermines and destroys the character of individuals and of communities.

I am glad that some of our outstanding leaders in government have called for measures designed to accelerate the return of conditions favoring the system which helped America to attain a position of eminence among the nations.

I quote from a recent statement by George M. Humphrey, Secretary of the Treasury:

"What you need are stimulants sufficient to get the people to start themselves moving.

"I believe fundamentally that the success of America is all wrapped up in and almost completely dependent upon the efforts of 160 million people, each one of them trying to get himself to be a little better off than he was, and so on.

"It's that spirit and almost all of the 160 million of us have that spirit. I suppose there are a few that don't, but the great majority do.

"If you don't interfere with them and you give them the best opportunity that you possibly can to exercise that initiative and carry forward that ambition, that's what makes this country go."

I think in those words of wisdom, Mr. Humphrey has described the basic reason for the remarkable progress America has made.

I do not believe each of the 160 million Americans can do the job that needs to be done without the necessary teamwork. I am sure Mr. Humphrey does not think so.

We may start with the premise that each of us in America is to be allowed the greatest possible freedom consistent with the best interest of the nation as a whole and with the rights of other individuals.

That being said, it remains to be declared in no uncertain terms that free individuals working together and co-operating on a voluntary basis can accomplish wonders in the future growth and progress of our country.

So that you may clearly picture with me the great possibilities in this matter, I want to tell you a little about the National Council for Community Improvement.

It was formed about five years ago following a meeting of national leaders in business, agriculture, industry, education, and among civic

To-morrow's citizens must be groomed to-day in order that they may take their places as responsible men and women in the life of their town and their country. With the aid of their parents these youths learn to solve disagreements by discussion and that a united effort provides better recreation as well as better government.





Constantly doing things -better!



"... as you know, we had in mind only a modestsized operation, and we are astonished by and deeply appreciative of the great amount of assistance your plant location people have given us."

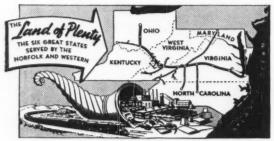
Letters like this one make us feel that some business men hesitate to ask for the assistance of plant location specialists when they are looking for locations for small factories.

If you have faith in your plans, that's enough for us.

No matter what size plant you may have in mind,

or how far ahead you're looking, just remember this-

The Norfolk and Western's Industrial and Agricultural Department has over 50 years of experience, has a thorough knowledge of the industrial potential of The Land of Plenty, understands your problems and is enthusiastic about helping you. For advice that will help you locate a small plant in a big way, write, wire or call — THE INDUSTRIAL AND AGRICULTURAL DEPT., Drawer N-629 (Telephone 4-1451, Ext. 474) Norfolk and Western Railway, Roanoke, Virginia.



YOUR TRAFFIC MANAGER is a transportation specialist. Transportation is a major factor in good plant location. Consult your traffic manager about transportation advantages for your plant.

Horpolkand Westerne



DEVANEY PHOTOGRAPI

The commercial section of a town usually runs a poor second to the residential district. Parks, playgrounds, and wide tree-lined streets are important, but so is the establishment of an attractive business and shopping center. More and more communities are becoming aware of the need for beautifying all sections.

and religious groups. These people sized up the situation as follows:

In each of thousands of communities, there are numerous organizations. Some of these are purely local, others are chapters of national associations. Most of them represent specific objectives. A few, like the Chamber of Commerce and the service clubs, have more general interests. But there is a need for an organization of organizations—literally an interorganization committee to bring together representatives of all groups in a local Community Improvement Council.

When one of the organizations wishes to initiate a project of community-wide interest, it is brought before the Community Improvement Council, and if adopted, the entire community gets behind it. Of course, many projects can be, and are, proposed by the local council itself. There is then opportunity for all to serve in projects that benefit their friends and neighbors as well as themselves. Loyalty to the home community is closely associated with loyalty to the home itself.

The National Council for Community Improvement was formed to help states and communities to organize such local improvement councils. Another major and related objective of the National Council is to encourage local initiative in the setting up of projects on a local self-help basis. It is important that the people themselves do something for their community betterment, that they get the benefit from it, and that they get the credit for doing it. In doing for themselves, they develop civic pride that brings them great satisfaction and strengthens their character.

It is not hard to get people interested in improving the home town and enlisting them in a program of making life more livable in the home community. But it usually requires some outside stimulus to get them started. There are few things so important as this sort of activity

in which all the people in a community are engaged. The National Council for Community Improvement, Paul Brown Building, St. Louis, Mo., will provide to all who are interested useful information about Community Improvement Councils and their organization.

This movement to encourage self-reliant action on the part of the people in the communities has the endorsement of leaders in the Congress, in the Administration, and among the key national leaders in many groups who have lent their support and encouragement to the officers and trustees of the National Council.

Of course, many of our problems do have to be solved by national authorities acting for the people. This is true in particular with problems involving relations with other countries. We are fortunate, however, in having representatives in our nation who are responsive to the will of the people, and it is good that all of us maintain an interest in foreign affairs. The real strength of America is in her people, residing in the thousands of American communities across our land.

A nation of organized communities will be a stronger nation. When you see a community that is beautiful in appearance, well laid out, kept in good physical condition, with good schools, well supported churches, having recreational facilities and activities that often bring people together, you have a good community. You have a community that attracts trade, attracts tourists, and holds young people and offers inducements to them to stay and help build a greater home town. This joint activity reacts favorably on the people themselves. It is especially so if the projects in which they engage are locally initiated and developed and are financed by the citizens of the community.

Self-help is a character building force that can go a long way toward continuing the fine quality of American citizenship.

Any community can have the benefits of community development if there are a few civicminded individuals who will get together and plan for it—men and women who are wise enough to help select effective leadership, who are locally influential, who are interested in serving the good of the community.

Americans love get-togethers. Americans love projects. The American way is to do for themselves individually in the case of personal affairs, and in co-operation with neighbors in community affairs. With less dependence on central government at Washington and with an enterprising spirit encouraging all the people in the communities to work together in their own interest, we may confidently look forward to a good future in this country.

#### Local Opportunities

Except in those areas where the nature or magnitude of an undertaking requires federal handling, there is a great field for profitable local endeavor-in building a better home town environment, in promoting trade, in establishing better relations with the rural areas, in making life more livable for all. There are great opportunities to give the next generation a good start toward the continued progress that will help to assure their happiness and well-being in future years. I can wish no man greater satisfaction than to see his community launched on an enterprise designed to keep the community actively at work on a course of continued improvement. Who doesn't want his own home town to be a good home town?

Here is a project worthy of your best thinking and your best effort. Senator Karl Mundt recently said that, in his opinion, the most dangerous enemy we have here in America is apathy—the feeling on the part of the average person that his Government is too big and complicated for him to do anything about it. To quote Senator Mundt further:

"Once the citizen loses his sense of personal responsibility for the welfare of the nation—of participation as an active loyal citizen—we shall indeed be destroyed from within."

Participation begins at home. It takes the form of initiative and responsibility in connection with local projects. It inspires citizens to present their ideas and to convey their desires to chosen representatives in Congress.

When the people get together and discuss problems of local, state, and national affairs, the result will be healthy for the nation. It will be a fine thing if, instead of waiting for some magic formula to solve our problems, worked out by someone far away, each community will go to work under local leadership, co-operating on local projects and making sure that at least their own communities will be enlisted in solving the problems that directly concern them.

It will be a great day when we see across the country a universal picture of thriving communities, each working to outdo itself in realizing its potentialities and fulfilling its destiny as home town to an important group of American people.

# This is the Davidson...

...the remarkable multi-purpose reproduction unit. The only one of its kind.

Compare the Davidson with any duplication method in the field.

The Davidson *prints* letterheads and *embosses* the stationery, all in one operation. It *imprints* advertising material. It functions as a *duplicating* machine that reproduces maps, engineering drawings — anything that is drawn, typed, ruled or written, as well as a host of other required materials.

The Davidson prints by the offset method (both wet and dry) or by letterpress (employing electrotypes, type slugs and rubber plates). Changing from offset to letterpress requires only a matter of minutes.

This great flexibility of the Davidson means money-saving advantages for you. On the Davidson you can reproduce office forms, letterheads, leaflets, house organs, etc., by whichever method is the most economical and efficient for you. The Davidson is so simple to operate that any man or woman need be trained for only a short time before he or she is in full command of the machine.

ONLY THE DAVIDSON
OFFERS YOU THIS FLEXIBILITY

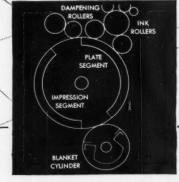
With the same unit you can do:

LETTERPRESS PRINTING
DRY OFFSET PRINTING
WET OFFSET PRINTING
RUBBERPLATE RELIEF PRINTING
EMBOSSING
IMPRINTING & NUMBERING
AND MANY OTHER OPERATIONS.

DAVIDSON SALES AND SERVICE IS NATIONWIDE.

IF, HOWEVER, A DAVIDSON REPRESENTATIVE IS

NOT CONVENIENTLY NEAR, WRITE FOR INFORMATION ON DAVIDSON'S MULTI-SAVING SYSTEM.



Here's the secret of Davidson's multi-purpose reproduction:

#### The 2-Cylinder Principle

For offset, the impression plate and offset plate are combined on one cylinder... the lower cylinder serves as a blanket cylinder. For letterpress the upper cylinder holds type, curved plates, etc... the lower cylinder then becomes an impression cylinder. Ask your Davidson salesman to show you the 2-cylinder principle in operation.

#### DAVIDSON CORPORATION

DEPT. 1-41, 29 RYERSON STREET, BROOKLYN 5, NEW YORK

A subsidiary of Mergenthaler Linotype Corporation



The mystery of masterful merchandising is solved by Humphrey Gocart with the help of the "Leprecan" in *The Fourth Man or Makin' A Buck Is No Mystery*, made by Continental Can for beer can customers to show to their distributors.



Beseiged by retailers who would know what killed their sales, the private eye enlists the "Leprecan," who takes him on a tour of beer can history and the clients' stores. After solving the beer case, the "Leprecan" takes a powder.



A shower of money descends on our hero as he shows the hapless retailers how to save their businesses. Produced by Transfilm, Inc., the 17-minute color film was done in economical limited-animation and in the latest cartooning style.

# SALES PROMOTION ENTERTAINMENT PUBLIC RELATIONS EDUCATION ORIENTATION TRAINING

#### FILMS for Management

Films are being put to work by business for an entire panorama of purposes. Whether within or outside the plant, on free or on paid time, the film is proving a vital force for business communication. In this new visual age, the growth of the sponsored film has been matched only by that of its stimulating ally, television.

DURING 1953 American industry used films more extensively than ever before and spent about \$60 million for the production of new films to train employees, sell products, for public relations, or to perform a multitude of other tasks. With the competitive race quickening throughout American business, it would be expected that the sales film this year will gain ground from the low-pressure public relations production. However, many companies have discovered that the public relations film, such as Nash's Out of the North or Ford's The American Cowboy (both prize-winners), return invaluable long-term dividends. Whatever the particular form the business film may assume in 1954, there seems little doubt that the record figure of \$60 million for 1953's film output (which was about 20 per cent above that of 1952) will itself be surpassed. In 1948 so little was spent that no official figures were kept.

Among the recent developments of interest to films-minded people was the demonstration last month by RCA of the truly revolutionary development of electronic photography. While it will be about two years before this new process is fully developed, David Sarnoff, RCA chairman, thinks it may eventually replace film in theatrical and non-theatrical motion pictures. However, film producers are not immediately adding this to their long list of worries; they see it as a long-term possibility which may be more a boon than a bane.

The most immediate use of the recording of images on magnetic tape—similar in principle to the fast-developing magnetic sound tape—will be to supplant the present kinescope process in the recording of TV programs. Mr. Sarnoff estimates that this new process will reduce the cost of recording a color television program by as much as 95 per cent.

While this development may bring sweeping changes in the production and distribution of sponsored films within a decade, there is little indication that it will upset the showing of films on television in the next few years. At the present time, films account for about 50 per cent of total time on network TV and for 60 per cent on non-network stations. Of course, not all of these are films sponsored by American business; but, with the burgeoning of numerous non-commercial educational TV stations in the near future, sponsored films will be in steadily rising demand. The 'arrival of color TV this year is also looked upon as a further stimulant for many of the most impressive sponsored films were made in color. However, sponsors of films are not anticipating any excessive reliance on TV audiences this year for they favor the alert, interested weekly audience of more than 20 million on the 16-mm. circuits, which has been growing steadily without the doubtful inducements of cardboard glasses or popcorn.

A Is For Atom (16 minutes, color). This latest film to be sponsored by General Electric offers

at least three distinct services to those in business who use films. It is an outstanding example of a public relations film. It offers a vivid model of adroit animation, a technique not always put to work where it can do best. And, in addition, it demonstrates the cogency of visual education in explaining an abstruse subject entertainingly and succinctly. It is available free from GE film libraries in fourteen major cities; the New York office is at 570 Lexington Avenue, New York 22, N. Y.

A Is For Atom is number sixteen in the "Excursions in Science" series, produced by General Electric since 1935 in an operation which is rather unusual in the sponsored-film field. The shorts go first into the regular theaters with little expense to GE—theater operators are more than eager to run these entertaining films in which the public service pitch is decidedly sotto voce. In this latest production, GE is mentioned only in the credit lines at the start and finish of the film

After its initial release in March 1953, A Is For Atom played to three million people, including a run of twelve weeks in one of the Broadway cinema cathedrals. After about 80 per cent of the first-run theaters had had the film, it was released to business and others in August. And then the dam broke. Within three months more people on the 16-mm. circuits asked for and saw Atom than all other 29 GE films combined. Both the Departments of Defense and



### Competition?

#### I like it...you can't build a business without it

Competition is the basis of a healthy tension by which the quality of a product, the merits of a service and the decisions of management are tested. A great business thinker once said, "If you don't have competition you ought to create it, because it is necessary to your progress."

The competitive spirit builds a sturdy anatomy for business, and provides the zest for achievement. Let Dun & Bradstreet help you in the contest for increased sales volume and profits, with basic and current information as an aid to your sales and credit program.

#### Dun & Bradstreet, Inc.

OFFICES IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

State are seeking prints; State wants a few hundred to translate for foreign distribution. Endorsed by the AEC, it is considered as outranking the dozen other shorts on the subject; the AEC has about 30 prints on permanent loan. Although GE has released some of its other science series for TV, the company has no such plans for *Atom*, prefers to reach the select, interested, and measurable audiences for 16-mm. films. Produced by John Sutherland Productions of Hollywood, it was one of the winners at the Cleveland Film Festival.

Scheduled for initial release this month by GE is a new film on the atomic-powered submarine. Still in process is *The Story of Light*, which should stir great interest for it is the first film to be made for a US company by Holland's Joop Geesink, the developer of an *avant garde* technique in the use of puppets.

Safety Is No Accident (13 minutes, color). Although some drivers will doubtless disagree, the theme of this new public relations film is that roads would be much less dangerous if all drivers were as careful as those handling trucks. The particular source of this putatively exemplary driving is depicted in this informative film, sponsored by Markel Service, Inc., the nation's largest insurance underwriter of trucks and buses. Aimed primarily at television, the film describes the accident-prevention program carried on by Markel.

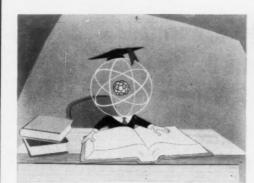
Unknown to virtually all but operators of trucks, Markel keeps a constant check on the millions of truck drivers in 48 States and Canada. Probably the most important check-rein on truckers involves a little-known use of film in industry. Markel inspectors roam the highways like road-runners, eager to capture on film the reckless truck driver who flouts the code of the road.

As a result of the initial showings of the film,



Caught in a lasso of film.

inquiries about the special Markel camera have come from police groups in various parts of the nation. The third film made by Markel—the first two were rather disappointing—this new reel has proved doubly useful: it helped in the recent sale of a \$3 million stock issue by Markel. Produced by Victor Kayfetz Productions, Inc.,



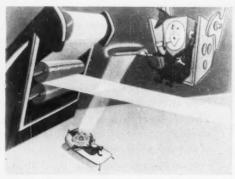
The clear-headed expert on nuclear fission, Dr. Atom, takes you on an entertaining tour of Element Town in the GE film, Als For Atom.



There you'll learn how isotope families make up nature's 92 basic elements and how they are related to and differ from one another.



Proud as punch are the three natural isotopes of uranium, offering the world both death and life, which is stressed in this color cartoon.



At work in industry to-day, "Private Eyesotopes (radioactive tracer and Geiger counter) maintain thickness of sheet aluminum.

it is available from seven local Markel offices, including 90 John Street, New York 7, N. Y.

Accounting—The Language of Business (20 minutes, b&w). As an integral part of its program to relieve the shortage of accountants, the American Institute of Accountants has made its first venture into the field of films. Accounting—The Language of Business dramatizes highlights in the career of a CPA, demonstrating that he needs a doctor's dedication, a lawyer's loquacity, and the deductive powers of a detective. It stresses that accounting is not all figures and facts; an understanding of people and their problems, and an ability to solve them are just as necessary.

While aimed primarily at high school and college audiences, the film does have features to recommend it to business men. Small enterprisers unfamiliar with the importance of public accounting will find it rewarding. Office staffs in large commercial companies who become uneasy at the arrival of "snoopers" should be assuaged by a showing. It would also make a worth-while addition to a general film program, illustrating the operation of American business. Produced by Wilding Picture Productions, Inc., the film is available from Association Films, Inc.,

347 Madison Avenue, New York 17, N. Y.

Piercing The Unknown (22 minutes, color). The history and development of computing



New source of brain-power.

devices are recorded in this engrossing film. Produced by the Raphael G. Wolff Studios of Hollywood, it demonstrates the uses of IBM Electronic Data Processing Machines, the latest brains which can solve in hours abstruse problems, previously requiring years of mental gymnastics. It can be booked from Department of

### Overhead Heaters a Maintenance Headache?



### TORNADO.

Periodic cleaning of the plant heating system used to be a real problem for the Great Lakes Spring Division of Rockwell Spring & Axle Corporation. Heaters would clog with dust, preventing proper circulation.

The trouble was that blowing out 75 unit heaters hanging 14 feet above the floor caused a dust storm that required a major cleanup of machinery and equipment afterward. And the job had to be done on overtime when the rest of the plant was shut down.

That was before Tornado vacuum went to work. Now it takes about  $3\frac{1}{2}$  hours to do the whole job. There's no climbing up ladders and no dust problem during or after cleaning . . . it's done during the regular work shift, too.

Tornado makes quick work of cleaning machines and other equipment—gets into corners and behind machinery where sweeping is practically impossible. The Tornado does both wet and dry pickup, so cutting-oil and water are no problem. Find out how the Tornado can help your housekeeping headache.



WRITE FOR BULLETIN 600



#### BREUER ELECTRIC MFG. CO.

5106 NORTH RAVENSWOOD AVE.

CHICAGO 40, ILLINOIS

Education, International Business Machines Corporation, Endicott, N. Y.

America's Untapped Asset (131/2 minutes, b&w). Produced by The President's Committee on Employment of the Physically Handicapped in cooperation with the Bankers' Life & Casualty Company of Chicago and United World Films, Inc., this film describes how one company has found that the so-called handicapped are frequently at least as efficient as other personnel. The experiences of Bankers in its deliberate program to hire the handicapped-who now number about 25 per cent of its total personnel of 2,700-are depicted. Available from Film Library National Society for Crippled Children and Adults, 11 South La Salle Street, Chicago, Ill.



Welding Advances With Aluminum (28 minutes, color). A tour of Alcoa's research and process development facilities is provided viewers of this informative film, which details the latest advances in welding aluminum using both the tungsten arc and consumable electrode methods. Of undeniable interest to engineers, executives, and assorted welders, this film can be borrowed from the Motion Picture Section, 818 Alcoa Building, Pittsburgh 19, Pa.

The Living City (24 minutes, b&w). Easily ranking with the most effective documentaries of recent years, this new film presents a rather fresh concept of urban life. Through actual on-the-spot scenes in several cities, it considers the modern city as a living organism, experiencing the natural cycle of growth, decay, and renewal. When the process of renewal is blocked, slums, traffic snarls, and stagnation result.

Sponsored by the Twentieth Century Fund as part of its over-all plan to probe problems and present them to the public, the film is rather

unusual in being the visualization of a serious book by an economist (Renewing Our Cities by Miles L. Colean). No easy panaceas are offered in this film; rather it emphasizes that the problem of renewing our cities is a complex one, not however, beyond the powers of the American people.

Although the film is devoted to a consideration of such impersonal forces as redevelopment, rezoning, industrial growth, and the like, it in no way neglects the ever-important ingredient of human interest, as the camera tour of slum sections so well attests. Produced by Encyclopedia Britannica Films, 1125 Central Avenue, Wilmette, Ill., it can be rented for \$4.50 from EBF film libraries in nine cities.

Three film strips in color describe in detail arc welding. Designed to aid instructors of welding apprentices, these strips illustrate the welding process and the proper use of welding equipment. Composed of three fifty-frame strips, the series, *Arc Welding*, can be purchased for \$19.50 (including manual) from the Lincoln Electric Company, 22801 St. Clair Avenue, Cleveland, 17, Ohio.

#### Film Flashes

Possibly following the exhortation, "if you can't lick 'em, join 'em," the film has now assumed the shape of television in a new projection device. Already being used by a number of companies, including Du Pont, United Air Lines, International Harvester, General Motors, Alcoa, and others, this self-contained unit—both projector and screen—provides automatic screening for as much as 1,600 feet of film (44 minutes) which it will repeat for as many as 200 hours automatically.

The Illinois Bell Telephone Company is able, at the press of a button, to offer its workers during lunch hours and reliefs continuous films on safety, training, and even entertainment. Although many people will continue to find the movie screen more engrossing, there are several distinct advantages to this projection unit:

- 1. No attendant needed.
- 2. Films are quite visible in an undarkened room.
- 3. The TV cabinet invites random

viewing of safety films and the like during lunch hours and other short periods.

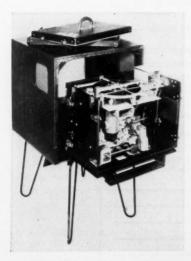
4. It is both space-saving and portable.

Of course, there are many other uses for such a projection device in addition to in-plant showings. It is particularly appropriate for rerunning TV commercials for dealers and distributors. At sales conventions and business shows companies can attract breathless at-



tention to their exhibits by using color film in this imitation TV cabinet. For the showing of point-of-purchase selling films, it should be at least as effective as other projection units not disguised as TV sets.

The unit contains a Bell & Howell Filmosound 285 16-mm. projector,



an automatic humidifier, and mechanical film inspector which stops the machine to protect the film if a splice comes apart or if a film loop is lost. Made by Triangle Continuous Daylight Motion Picture Projector Company of Skokie, Ill., the unit is available through photographic dealers.

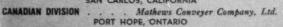
#### Catalogs

- The quiet, unspectacular work of the United Nations and its specialized agencies in bringing aid to backward areas of the world is depicted in dozens of on-the-spot films listed in United Nations Films. Cameras were focused on most of the impoverished areas which circle the earth like the tightly notched belt of a hungry man. To diminish disease, lift literacy, aid agriculture, and inspire industry, UN missions carry on their vital tasks in Afghanistan, Bolivia, Indonesia, Greece, and many other places. Most of these 16-mm. documentaries can be rented for \$2.50. Catalogs are available from Department of Public Information, United Nations, New York, N. Y.
- Other impressive additions to a film program would be any of the ten nature films making up the series entitled, The World Around Us. Offered by Pictura Films, 487 Park Avenue, New York 22, N. Y., these eleven-minute color films are devoted to the habits and habitats of the creatures of the water, the forest, and the air. California condors with eleven-foot wing spreads soaring on cross-currents of air in the Rockies, and scores of salmon leaping waterfalls are among the stars of these films. Not merely descriptive, these films stress the importance of conservation to the delicate balance of nature.
- The new 1954 catalog of Films of the Nations Distributors, Inc. offers more than 100 titles covering 23 parts of the world including Finland, Tahiti, and the Union of South Africa. For those who prefer to see America first there are colorful films on New Hampshire, Michigan, and Florida, and others on the mermaids of cypress gardens and underwater spear-fishing, without which no contemporary recreational film program would be complete. Not merely travelogs for the chairbound tourists, many of these films offer vivid insight into the cultural patterns in faraway places. The catalog is free from 62 West 45 Street, New York 36, N. Y.



★ Here is a completely new trolley conveyer designed to meet the requirements of the most exacting purchaser. A top-quality precision wheel, the No. 4207 Loadstar is the heart of this rugged newcomer to the 4" trolley conveyer field. Five years of research and development by Mathews Engineers are behind this exceptionally fine trolley which is recommended for the overhead conveying job demanding stamina and continuous trouble-free performance. Write for Bulletin LS1, announcing and describing this new trolley.

#### **MATHEWS CONVEYERS**



Engineering Offices or Sales Agencies in Principal American and Canadian Cities





## with TOCCO\* Induction Brazing

The shift from welding to TOCCO\* induction brazing of the drive shaft assembly pictured here is typical of savings accomplished by TOCCO in over a thousand of America's leading metal-working plants. If you have brazing, soldering, heat-treating or heating for forming or forging operations in your plant TOCCO can probably save you money too.

COSTS DOWN 67%—Mechanics Universal Joint Division of Borg-Warner reports a 67% cost reduction in TOCCO-brazing yokes to tubing in the manufacture of power transmission shafts. Formerly, parts were hand-welded.

PRODUCTION UP 400%—Automatic TOCCO increases production from 11 to 45 pieces per

hour - 400% faster than former method. In addition TOCCO-brazing produces a cleaner, neater joint than possible with previous method.

TOCCO Engineers are glad to survey your plant, without obligation, of course, to determine where TOCCO Induction Heating can speed your production and cut your manufacturing costs.

# THE OHIO CRANKSHAFT COMPANY NEW FREE BULLETIN THE OHIO CRANKSHAFT CO. Dept. 1-1, Cleveland 1, Ohio Please send copy of "Typical Results of TOCCO Induction Hardening. Name Position Company Address City Zone State

and

#### EMPLOYER RELATIONS

Low-cost programs
air industry ideas
in school and home

THROUGH a co-operative radio program tested over the last three years, manufacturers and other business concerns in New Jersey have developed a low-cost means of telling their own company stories, plus the free-enterprise story, to a large proportion of the state's population.

The program, originated and sponsored by the New Jersey Manufacturers Association, points the way for similar organizations, or even groups of industries in a smaller industrial area, to achieve the same ends.

The Association's Publications and Research Department, with headquarters at 363 West State Street, Trenton, N. J., is currently arranging for the fourth year of the "Voice of New Jersey" programs, which will begin with the opening of the public and parochial schools next Fall, and run through to the Christmas holidays.

School children, housewives, and the Sunday morning radio audience are the main targets of the thirteen broadcasts the Association produces each Fall. They are aired on six local radio stations spotted from the northern extremity of the state, opposite New York City, to the southern end, near Philadelphia.

Last Fall, for example, each program went out from a Newark station on Sunday at 11:15 A.M., Morristown Monday at 1:45 P.M., Paterson Tuesday at 2:15 P.M., New Brunswick Wednesday at 10:15 A.M., Trenton Thursday at 1:45 P.M., and Camden Saturday at 10:05 A.M.

In some schools, the fifteen-minute broadcasts are received by assemblies or social studies classes while in session. Sometimes a school will pick up only the broadcast of a program involving a local company.

School use of the economic education aspect of the series goes even farther, however. Through close co-operation with audio and visual aid departments of some of the schools, the Association supplies them with transcriptions, which are used at the teacher's convenience.

This opportunity to tell industry's story to school children is only one of the plus-values the good planning of the organization's Publications and Research Department has created. Individual companies use low-cost, or free-onloan, transcriptions for employee indoctrination sessions, salesman-training, community relations











#### Story Conference

First step, when DeLaval Steam Turbine Company became "Voice of New Jersey" sponsor, was story conference. Left to right: R. W. Watt, New Jersey Manufacturers Association; Frank Story, DeLaval advertising manager; Edwin Tucker, Watt's aide.

#### Script Writing

Company's advertising literature, stockholders' reports, employee booklet, local history, story conference notes, voluminous other reference data are the basis on which Milton Lederman, writer for series, builds individual script.

#### Program Enacted

Fred Bernstein, series director, puts the cast through its paces as the program is recorded on tape. Tape is made into transcriptions by RCA for playing over the air on six Jersey stations and for later use in schools and meetings.

#### Press Publicity

President Henry W. Johnson of Manufacturers Association (left) presents "Award of Merit" plaque to President J. P. Stewart of De Laval Steam Turbine Company in recognition of company's program. Papers always use picture.

#### Program Aired

From six radio stations spread the length of the state, on six days of the week, the recorded program goes on the air from control rooms like this. In the audience are a potential quarter million listeners, some in schools.

## MATERIALS HANDLING

## The Last Frontier of Profit!

There remains one last opportunity for increased efficiency and attendant profit for most companies faced with rising raw material, labor, manufacturing, distribution and sales costs. Truly, materials handling is the only sphere of operations wherein efficiency can be stepped up.

Island Equipment Corp. has prepared a 116-page brochure which contains technical data and description of equipment for cost-cutting conveying and materials handling. Included with the brochure are reprints of published case histories telling the experiences of concerns in diversified fields who have reduced their handling costs through the application of Island conveyors and packaging equipment. Executives in such industries as food, drug, liquor, publishing, metal finishing, chemical, hardware, toy, dairy, and in wholesale and retail fields should have this thought-stimulating brochure in their business libraries.

You will find this an invaluable book—a helpful tool in attacking today's difficult problem of making a profit. Write for your copy today.

THIS FREE 116-PAGE BOOK SHOWS THE WAY!



EQUIPMENT CORP.

27-01 Bridge Plaza North, Long Island City 1, N.Y.

PACEMAKERS OF PROGRESS IN CONVEYING AND MATERIALS HANDLING



#### QUOTA CLUB

Start a Quota Club and watch your sales in crease. Your salesmen will be proud to earn the right to wear an emblem with your company name



Augment your cash award with a distinctive emblem. Promote competition among your workers. Increase labor, material and method savings.

Advertising Specialties
Name Plates
Plaques

WRITE FOR OUR

METAL ARTS CO., Inc. 742 Pointand Ave., Dept. 45, Rochester 21, N.Y.

Offices in Seattle San Francisco, Los Angeles, Washington, D. C., Philodelphia, New York City

#### "Dial" gummed tape electrically

The new Marsh Dial-Taper is real news to users of gummed tape. Dispenses all kinds, in widths to 3", electrically. Select your length on the telephone-type dial, dial it, and out it shoots moistened with warm water. Sticks instantly. Saves 1/5 on tape, often more in man-hours.

For more information or a free demonstration mail us this ad with your name and business letterhead

MARSH Electric
Dial-Taper

MARSH STENCIL MACHINE COMPANY
62 MARSH BLDG. • BELLEVILLE, ILL.

programs put on before local civic and social clubs and organizations.

Starting with 32 companies and 32 programs three years ago, the New Jersey Manufacturers Association reduced the number of participants to 26 two years ago, and to thirteen last year—the level at which it will continue the series.

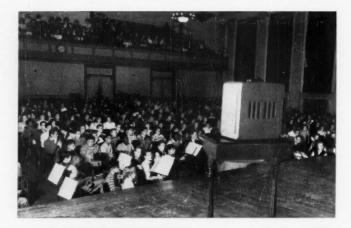
The reduction was not based on availability of willing participants—nearly 300 companies responded

to an initial inquiry as to who was interested in 1953. It was made primarily to insure high quality of programs and to fit into the thirteen-week, September-to-Christmas session of the schools.

R. W. Watt, director of Publications and Research, whose unit originated the broadcasts and is responsible for their production now, circularizes the Association's 9,000 members early each year with a

#### Bonus audience for the "Voice"

Many besides employees on Sundays and housewives on weekdays heard the DeLaval program. Below (top) a high school assembly hears the "Voice of New Jersey" broadcast. The DeLaval program made a useful tool, also, for instructional purposes at a sales meeting (center, below). Tape recordings are often used for employee orientation, too, in meeting (bottom) of supervisory personnel and engineers at the DeLaval plant at Trenton, N. J.









Are overtaxed shipping and receiving facilities jamming up the loading dock . . . putting a stranglehold on output? Are efforts to increase production and profits hampered by lack of additional loading capacity? There is one proved way to multiply loading capacity . . eliminate bottlenecks . . . prevent costly tie-ups—and all without major capital expenditure! Do as many thousands of leading companies have done. Equip your docks with magnesium-light, magnesium-strong Magliner Dock-Boards! With these low-cost, high output units in operation, you can speed material flow . . . establish faster, easier-access transit between plant and freight carriers . . . and cut loading time to a new low! a new low!







RAIL OR TRUCK DOCKS



Low side curbs, proper board length, precise crowning. All combine to insure absolute underclear-ance for low handling equipment.

EQUIPMENT

LONG SPANS

Ample strength, rigid structure, safe, easy crossover. For all span requirements— short or long!

Another great new First from Magliner!



Ordinary side curbs permit wheel rims to bear against and wear into the curb, thus creating jagged edges which soon result in costly, needless tire damage. If the cost of the new factor weakens the side curb and shortens service metal-to-metal cantact. . . wheel-to-curb collision — eliminating the single side curb specifically prevent of the control of the control of the curb collision — eliminating the single single.

WRITE TODAY for Information Bulletin DB-204R

MAGLINE, INC. · P.O. BOX 350 · PINCONNING, MICH.



### 40TOMURAL

#### Put bare walls to work

The walls of this progressive company\* are at work . . . showing products and applications in an interesting and decorative manner. Photo-Murals can put your walls to work, too, in offices, showrooms, or at conventions. We custom-make them of any subject, to fit any space. Black and white, sepia, or full color.

(Specialists in Industrial & Commercial Photography) \*Clark Equipment Company

WEST-DEMPSTER COMPANY

110 W. LYON,

GRAND RAPIDS, MICHIGAN

VRITE

FOR DETAILS

## Property Accounting Affects Profit

• Earning statements are substantially influenced by the accounting treatment of capital and expense items and by depreciation policies. Continuous American Appraisal Service provides the tool for better control of property and depreciation accounting.

The AMERICAN APPRAISAL



Company

Over Fifty Years of Service OFFICES IN PRINCIPAL CITIES



form inquiry as to their interest in becoming sponsors.

Those who respond favorably are sent a sixteen-page booklet describing the entire project and suggesting what is involved in becoming a sponsor, aside from a desire to go on the air and the modest wherewithal to pay for doing so. Mainly the requirement is that the company have an interesting story to tell.

This interest-element may vary widely. A bankers' association personalized the services banks perform to individuals, companies large and small, and the community. Specific instances were cited.

In another case, local history was the peg upon which the story of a chemical company was hung. Starting with George Washington, who at one time or another set foot in most parts of New Jersey, the broadcast worked around to payroll and other benefits now bestowed upon the locality by this concern.

In still a third program, the key interest was in the contribution to better living made by the inventions of the company's founder.

Upon mailing the descriptive booklet, Watt also asks for an opportunity for someone from his staff to visit the company, play recordings of previous programs, and investigate the story possibilities.

If the company is accepted as a sponsor, a free lance script writer, hired for the whole series, develops, with the aid of company executives and Watt's staff, a story line and a finished script.

When approved, the program is produced, by a director and producer similarly engaged for the series, and with a cast some of whose members are also used for all thirteen scripts. From RCA, the Association obtains pressings of recordings at educational transcription rates. Radio time is obtained at wholesale rates by contracting for the thirteen-week unit as a whole, with each station.

Economies made by the production of the thirteen programs as a unit are responsible, Watt says, for the individual companies receiving a service at \$600 which would, if undertaken by each company separately, cost three times that much.

The Association also publicizes the broadcasts through 287 daily and weekly newspapers and 179 company publications, and provides the loan transcriptions for civic

organizations. Each company receives a transcription for its own use.

Because the sponsoring companies are chosen from among a large number of applicants, additional publicity and public relations value is obtained by awarding the sponsor a plaque in recognition of its public relations and communications achievements. The award, made by an official of the state organization, always makes a good news peg for daily-paper publicization of forthcoming broadcasts.

Broadcast schedules and subjects are also publicized in two Association publications going to all 9,000 members, and in notices to all New Jersey schools.

Daytime hours are used for broadcasts, Watt says, for several reasons:

- 1. To avoid competition from evening TV programs.
- 2. To reach the maximum number of employees' wives.
- 3. To make possible in-class listening for schools that desire it.

The initial program on Sundays is calculated to reach company emplovees on a day off; total potential audience at the hours chosen is 256,000.

"Secondary themes" are woven into the company story rather than presented as separate commercial announcements. These are the type of fact that industry in general wishes to impress upon the public. The Association lists seventeen such "secondary themes," of which these are a few:

- Goods and services purchased in the state to supply manufacturing operations.
- · Local purchasing power augmented by company payroll.
- Work creation in the form of secondary employment.
- · Services provided to the community through taxes on industry.
- Skill and experience of company executives made available to local civic and welfare projects.
- · Research grants and fellowships provided by the companies.
- By-products of company operations of direct use to consumers, or opening new lines of research that may lead to new industries.
- Prestige accruing to the locality where a product of national reputation is manufactured.
- Student-educational programs conducted by the company.
- Athletic, social, and cultural

# More for your microfilming dollar

You're sure of these savings and advantages with Recordak



You're sure of getting a microfilming machine that's especially designed for your requirements . . . one that will give you all the advantages of modern microfilming at lowest cost.

This is possible because Recordak offers 6 different types of microfilmers, instead of one or two. Thus, even the smallest companies can realize savings—over and above all microfilming costs—which are proportionate to those of the largest ones.

And, remember, you can buy or rent your Recordak Microfilming machine on most attractive terms.



You're sure that your Recordak Microfilmer is precisionbuilt by Kodak to give you sharp, legible pictures of document after document... to prevent fogging, blurring, and overlapping of images... to compensate for operator failure... to minimize service requirements.

As you can well imagine the job of recording documents as tiny images on a strip of film is a most exacting one. And, here, Recordak's twenty-five years of experience and know-how are reflected in the economy and satisfaction of your operation.



You're sure that your microfilms will be processed the same day they are received at your local Recordak Film Processing Station. There are 26 of these stations, all told—professional in every respect! High speed, specially designed equipment is used exclusively . . . and skilled technicians are on the job from beginning to end. Every roll of film is processed to meet the specifications of the Bureau of Standards for archival films—then double-checked for photographic quality.



You're sure to profit, too, from the invaluable experience gained by Recordak Field Representatives in working with businesses of every size and type. How are companies such as yours saving dollars every day with Recordak Microfilming? These specialists know. And they're always at your call . . . always ready to work with your staff in correlating Recordak Microfilming most effectively with your present routines or contemplated ones.

Write today for full details—no obligation whatsoever. Recordak Corporation (Subsidiary of Eastman Kodak Company), 444 Madison Avenue, New York 22, N. Y.

"Recordak" is a trade-mark



(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—and its application to business routines

# How a noted aircraft firm cut production order lag more than 80%

Grumman Aircraft Engineering Corporation shifted production parts orders from a manual typing operation to a punched card tabulator system printing directly on continuous Colitho offset duplicating plates. A work load two-and-one-half times greater than wartime peak is now being handled with a staff increase of only 20%. Lag time has been cut from six months to one month!

A tabulator work day of 16 hours means rush! Colitho plates stand up to this kind of schedule. They're easy to prepare — give good, legible copies right from the start and deliver uniform reproduction—sharp and clean!

This case history demonstrates the economy and efficiency that countless businesses now enjoy through the use of Colitho plates. We have a collection of these factual stories which you will find packed with valuable ideas. May we send them to you? Use the coupon and you'll receive your copy of the Colitho Idea File promptly.



an F9F-6 Cougar

activities provided for the whole community through company programs.

- Financial support by companies to charitable institutions and drives.
- Contributions of industry to the national defense in times of tension.

For groups contemplating similar radio programs, a checklist of advice Watt's department gives sponsors is worth noting:

The program should be primarily educational, he points out, and directed toward high school and young adult groups. Radio stations carry the programs as a public service on the basis that they are educational.

The program should indicate that the industry is an example of private enterprise in operation; its association with New Jersey should be established, but if it plays a part in the national or international economy, that, too, should be brought out, because it emphasizes the state's industrial importance to the nation and the world.

Direct product advertising should be avoided.

Industry's contribution to the defense effort, if pertinent, should be mentioned, and the program should be designed to stimulate "some positive action on the part of the listener, even if it is only a desire to learn more about the industry or product."



One man, 572 ideas

George S. Kurtz, pipe mechanic at Armstrong Cork Company, Lancaster, Pa., fell off a ten-foot ladder one day in 1941 and has been bubbling over with safety ideas ever since. When he turned in 74 top-quality safety ideas in 1943, the National Safety Council tabbed him "Safety Ace" for the year. Ten years later he still holds his ace position, having run the total up to 572 acceptable safety suggestions and there is no end in view, the company says.



#### **QUAIL ON TOAST? SURE!**

## FOR A REALLY DIFFERENT GIFT FOR EMPLOYEES AND CUSTOMERS

We have prime quality oven-dressed and frozen quail at \$28.00 per dozen delivered anywhere in the U. S. Packed 4 birds to the carton in dry ice. Due to cost of dry ice, packing and shipping charges, we do not make shipments of less than 12 birds. Terms cash with order. Wholesale orders of 100 or more birds, \$2.00 per bird, if full order is made in one shipment to one destination.

LOWRANCE QUAIL FARM 1730 Picher Joplin, Missouri



One headlight limits vision—invites disaster! One telephone system limits efficiency—creates delays! Clear-cut service demands TWO . . . city 'phones for incoming-outgoing calls—SELECT-O-PHONE for all inside communication! Fast! Direct! Automatic! Every station calls every other station at the flick of a dial. Keeps switchboards free. Saves time, steps, money!

KELLOGG Select-O-Phone EXECUTIVE STATION Specially designed for Executive use. No buttons to hold—leaves both hands free. Separate handset for private conversations. Walnut or mahogany.



_	the	INSIDE	Voice	of	Busin	1055
KELL	0G	G	A tio	nal	Teles	of Inter chone Corpora

		110	Tele	graph C	orpord	tion
Kell	ogg Sw s Office	HONE DIV ritchboard es: 79 Wes	and Sup	ply Con	npany	
	switchb	us how SEL oard and				
NAN	E					
СОМ	PANY_					_
ADD	RESS					_
C124					_	

# POW/ER



# TO HELP TO HEAL TO HOPE

Your dimes and dollars created the National Foundation for Infantile Paralysis—you make up its army of 80 million supporters and three million volunteers.

In 16 years, a powerful force for good has grown from a mere handful of men and women. Its power is yours.

The National Foundation has created the most extensive voluntary research program ever leveled at a single disease. It sustains a program of patient aid in which no polio victim goes without the best available care for lack of funds. It trains thousands of hospital and health workers.

And it will take more in '54 to keep this program rolling—because victory looms over the horizon. Show your faith in the organization you have made—

JOIN THE MARCH OF DIMES

THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

#### TOP-LEVEL SALES COMMUNICATIONS

Continued from page 51

ly, for example, a large customer decided to change the metallic content of its product. The effect of the impending shift would clearly affect the steel firm's product mix and sales strategy and might conceivably call for large outlays to meet the new situation. Commercial Research drafted the report for sales management who then presented it to the top brass. The study was extensively illustrated with slides.

In some respects, slide reports are more effective at the top-management level than for middle or lower echelons. One of the reasons is that the team at the top of the pyramid accepts as authentic the data and the bases for its use. In other words, it is research or accounting who are responsible for procedures and verification and, often, a certain amount of interpretation. The report that the upper executive level sees, or should see, is in a sense a summary. It shows the results and the causation involved. Or, it explores one or more possible choices and the expected consequences of each. The importance of detail is balanced against the necessity of getting a certain number of points across. Because detail is minimized, slides can double the impact of a presentation by combining visual and aural re-

As for the relative merits of color slides versus other visual mediums, the U. S. Steel people point out

that these points are important.

(a) Film takes a longer time to produce. You usually cannot process it yourself. There are often lighting difficulties. If you dub in a sound track it takes even longer. But if you don't, the speaker must pace himself—one cough and you've lost 20 words.

(b) Film strips have the inherent disadvantages of film. If you use the common 35-millimeter frame any imperfections show up like a sore thumb. They are overmagnified if you try to use them for large groups. And both film and strip are relatively expensive.

(c) Stick boards and flip-flop charts are fairly inexpensive, fine for intimate audiences. With audiences of more than seven or eight, however, the increased size of the board (important for maximum visibility) puts a severe strain on the mechanical aptitudes of the executive speaker who, armed with a pointer, must lean across it to illustrate a feature on the far side of the chart and, eventually, put down the pointer to flip the unwieldy chart over. This hardly makes for a smooth, unbroken, performance.

The central thought that emerges from a study of reporting procedures in these and other firms is that it is a rare executive who is able to grasp both the details and the broad picture of company operations and act on the information. In order for the top sales staff to function efficiently in an administrative and a creative sense, they must get an assist from one or more of the staff departments. Normally, the key supporting department is commercial research, sometimes billed as the statistical department.

Because sales management is a relative newcomer to the administrative field, there are frequently organizational roadblocks to break through before efficient communications with the major supporting department or section can be set up. This is particularly true in companies where a long-established commercial research department has been functioning under the budget of another group, the treasurer's department, for example. The problem then, naturally, is the one of disturbing old work-patterns during the creation of new ones, as the research people design the new type of analytic summary reports the sales department requires.

Occasionally this means that market specialists attached to the sales department must be reassigned to the research department in order to integrate the entire technical reporting procedures. In some firms the fairly generalized commercial research group—in terms of specialized functions—has been split up and the smaller group servicing both the advertising and sales departments assigned to their budget.

Visual aids, which are becoming extremely important in communica-

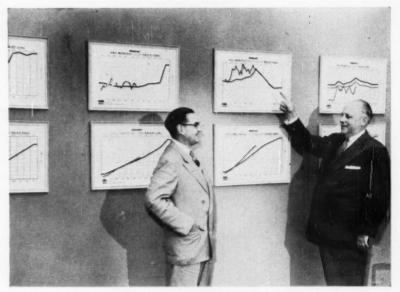
tion of technical information, are no better than the amount of information they transmit in a given time. The companies studied in this article find that to get fast understanding, the techniques must be easy to understand themselves. In other words, the medium must not stand in the way of the matter. Logarithmic scales, for example, are a waste of effort because the typical sales executive is not familiar with them.

But the heavier emphasis on visual aids is part of a definite reporting trend. Another part of the same trend is the summary report, a reflection of the fact that top sales management is being forced to delegate authority as functions become more specialized. Some sales executives still insist on full reports with supporting data—but it's a moot point whether they read them in toto.

Periodic seminars or briefings of the top sales team serves the same end as the summary report and the use of visual aids. They bring together all of the myriad facts that facilitate analysis of operations. Some companies with a tightly knit policy and planning team are able to by-pass most of these techniques because they communicate informally and daily. These, however, are the exceptions to a growing trend toward delegation of responsibility and reliance on facts and conclusions gathered by others. In a real sense, it suggests that sales management is coming into bloom.



Detailed Admiral Corp. wall charts use Rem Rand Sched U Graphs for quick check-up on inventories and sales of each model in each product line.



The new chart room uses line graphs to compare actual trend with sales goals. Sales V-P Johnson, right, also holds on-the-spot conferences here.



## When you call for these services in 1954 . . .

In the year ahead, chances are your firm will need services like these. Since few companies maintain staffs large enough to include specialists in all these fields, more and more management men are finding that the best way to get the assistance they need is to call an organization like Ebasco.

For when you call Ebasco, you call a team of specialists—engineers, constructors, business consultants—men whose technical talents are at a premium in today's tight manpower market. They provide you with the service your particular problem requires—and do it without adding to your permanent payroll, overburdening your busy staff or wasting the valuable time of your top executives.

Next time a need arises in your company for special assistance in any phase of business operations, ask your operator to connect you with Ebasco.



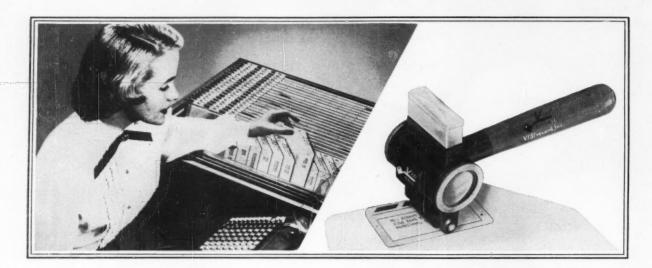
For more details on how you can put this reservoir of experience to work for you, write for your free copy of "The Inside Story of Outside Help."

Address: Ebasco Services Incorporated, Dept. N, Two Rector Street, New York 6, N. Y.

#### NEW YORK . CHICAGO . WASHINGTON, D. C.

Appraisal • Budget • Business Studies • Consulting Engineering • Design & Construction • Financial Industrial Relations • Inspection & Expediting Insurance, Pensions and Safety • Purchasing • Rates & Pricing • Research • Sales & Public Relations Space Planning • Systems & Methods • Tax Traffic • Washington Office





#### COST RECORDS THAT ARE NEWS NOT HISTORY

System adaptable to any and all Cost Records. Faster posting and "look-up" provides up-to-date data with less personnel, time and space.

On the face of it, any record-keeping method which could meet the needs of the many different cost accounting systems now in use would seem like a Utopian goal. A general characteristic of Cost Departments is the continuous strain placed upon them, due to demands for current, accurate cost data for operational purposes. Cited below are only a few of the instances where VISIrecord has been applied to cost records and, in every case, relieved the strain and received the highest praise. Some of the organizations now using VISIrecord in cost-record-keeping, are Ford Motor Company, York Corporation, U. S. Rubber Company, Bell Aircraft Company, Schlage Lock Company, and E. I. Du Pont de Nemours & Company, Inc.

Unlike any other equipment on the market today, VISIrecord combines complete visibility with compactness, flexibility of card design, ease of handling, simplified posting, and reduced card manipulation. This visible vertical principle provides for instant visibility of every card, and makes it possible to have thousands of records available to one operator in a sitting position, with instant accessibility to any card or group of cards, for easy removal, posting, and refiling. Here are just a few of

the many applications of VISIrecord existing today for cost records.

#### COST OF SALES

In keeping cost of sales records one user finds that, because of the speed and ease of selecting and replacing ledger cards, postings average 225 to 250 per hour and up. On this record, cost of sales is computed for each sale and quantities sold are accumulated. Frequent reference to the ledger is required for posting sales to date and checking gross profits and their variations. Part numbers visibly displayed on the visible margins of VISIrecord cards permit extremely fast reference. Postings are all done at the record desk.

#### **PRODUCTION COST**

Compared to the system previously used by one company, reference and posting with VISIrecord is now 38% faster and 250 or more postings per hour are made. In this application, labor, material and overhead costs are posted for each production lot. The record is extremely active as average costs are calculated monthly and frequent reference is made to the card for posting and checking variations of total cost and its factors.

#### MATERIAL COST

The user reports a savings of 50% over their previous system in selection, posting and refiling cards, and 100% faster reference to finished postings. The purchase value of the material is posted to the card from each vendor's invoice. Quantity to date and value to date are accumulated and an average unit cost is computed monthly. The record requires frequent postings for computing average costs and frequent look-ups for checking variations on material costs. The speed of look-ups, the ease of posting, and assured accuracy of returning the record to its proper place because of an automatic "card-out" control feature, enable VISIrecord to pay for itself many times over.

#### COUNTLESS ADVANTAGES

Aside from the time and work saved with VISIrecord, users report that normal position posting and more efficient work area arrangement also reduce fatigue and clerical errors. Another important economy is in the space saved, because large volumes of records can be housed in small floor space areas.

VISIrecord forms are unlimited in size and visibilities, and systems using two, three, or more cards can be employed without sacrificing posting speed. For full details of cost-record-keeping applications now existing in plants throughout industry, and for information regarding application to your specific problem, write VISI-record, Inc., Dept. D6, Copiague, Long Island, N.Y. or in Canada: VISIrecord, Inc., 266 King Street West, Toronto 1, Ontario.

-ADVERTISEMENT

## Training men for maintenance work without the equipment

Teaching personnel in the maintenance of complicated electronic machines without the equipment sounds like an aim impossible of achievement. However, a New York consulting firm thinks it has the answer.

The method of giving maintenance training and practical working experience without using the equipment is particularly valuable with the intricate and expensive electronic machines because there usually is no "spare" unit available for instruction purposes.

Formerly, in teaching practical training in maintaining and trouble-shooting electronic equipment, it was necessary to have one instructor for each one or two trainees, the equipment itself, and a long list of complicated instruments, meters, and diagrams.

The newly developed system is called the "Trainer-Tester," and consists of several units. It is a development of Van Valkenburgh, Nooger & Neville, Inc.

Because the machines involved are highly complicated, each Trainer-Tester application is a custom-made job. First, an engineering survey is made which includes a study of the unit or units involved, a review of maintenance records, and other aspects of operation.

With electronic equipment the two most important factors of maintenance work are circuit tracing and trouble-shooting. For each of these there are three charts—a schematic diagram, a wiring layout, and a drawing or a photograph

## Here and There in Business

WHAT'S NEW

#### AS OBSERVED BY THE EDITORS

of the particular machine which is to be studied. In practise, the trainee is given a specific assignment and he reads the problem on the trouble-shooting Trainer-Tester.

He uncovers only the test data which he thinks significant in solving the problem.

He concludes that a particular circuit component (or adjustment) is causing the trouble.

He locates the suspected circuit component (or adjustment point) on the pictorial view and finds its code number.

He uncovers on the Trainer-Tester the concealed answer next to the code number selected. This reveals whether or not the trouble symptoms would be removed by replacing the suspected part with a new one, or by readjusting the suspected component.

A special covering material conceals the columns which have the correct answers. He scrapes the portion of the covering material opposite the code number and finds the exact trouble.

One phase of this method of training is that it tests the proficiency of the trainee since the marks on the covering substance leave a trail of his analysis, the steps he has thought necessary, and of his ability to make the necessary adjustments in an orderly and logical manner, according to Richard S. Neville, vice-president of the company.

"The Trainer-Tester method is versatile and can be applied to any field where maintenance of complicated equipment is a problem," Mr. Neville says. "Situations where the testers are effective include initial selection of men and women, upgrading, and performance measurement to determine the rate and extent of what they are learning."

#### Mighty midget

A new transistor with a power of 100 times that of other available types has been developed by Minneapolis-Honeywell Regulator Company, Minneapolis, Minn.

This transistor has a power output of 20 watts, compared with that of 20 one-hundredths of a watt for those electronic midgets which are now on the market.

The company feels that the new transistor will be instrumental in improving automatic controls.

## How long does it take between invention and commercial success?

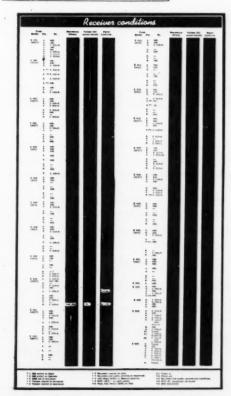
How much time elapses between the first successful experiment and the achievement of an accomplished commercial venture?

Business history shows that the time lag between the invention and the on-the-counter stage varies a great deal. With the incandescent lamp, for example, the period was relatively short. Edison's first bulb glowed at Menlo Park, N. J., in 1878, and the first electric central station started up in lower New York City in 1882.

Most recent example of the fact that it requires time from test tube to finished product is non-stop flying from coast to coast in the United States.

The first non-stop transcontinental flight, from

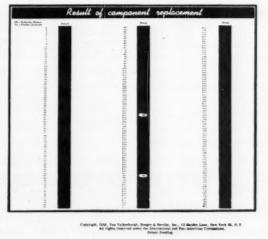
COMMON FAILURE NO. R-1



THE UBB SONAR EQUIPMENT

major component: THE RECEIVER trouble symptoms:

The QCB system operates in a normal manner except that there is no horizontal deflection on the BDI "scope screen—no reverberations or echoes appear. A systems check indicates that the cause of this trouble is in the receives Hastille to the cause of this trouble is in the receivar trouble is often caused by the breakdown of a single component.



The scratched-out portions on the columns indicate how the trouble-shooting Trainer-Tester is used.

New York to San Diego, was flown in 1923. It was in the Fall of 1953, just 30 years later, that non-stop flights on a commercial basis were started by two of the country's air lines.

A booklet, Fifty Years of Powered Flight, documents the fact that the first non-stop, coast-to-coast flight "was flown by Lts. O. G. Kelly and J. A. Macready in a Fokker T2-Liberty 375 for a distance of 2,520 miles with a flying time of 26 hours, 50 minutes." The booklet was compiled and published by the Admaster Creations Company, Toledo, Ohio, in co-operation with the National Committee to Observe The 50th Anniversary of Powered Flight, the Toledo Public Library, and the Historical Division of the United States Air Force.

On October 19, 1953, an American Airlines DC-7, the new and largest commercial transport plane flew non-stop from Los Angeles to New York in six hours, 52, minutes.

Trans World Airlines inaugurated non-stop, east-bound, coast-to-coast commercial service in September. American Air Lines started its regular service both east-bound and west-bound on November 29.

Non-stop transcontinental flying took exactly 30 years between first accomplishment and public service.

This time lag can also be demonstrated by the following popular objects, and the date of their invention:

Adding machine	1642
Bakelite	1907
Television	. 1926
Color television	1944
Color photography	1891
Telephone	. 1876
Radar	. 1922
Rayon	. 1883
Automobile	

Everybody knows approximately when these things reached the commercial success stage and became a generally accepted part of the daily life of the people.

#### Air conditioning for standby plants

A new unit giving a combination of refrigeration and chemical dehumidification is now available for use in storage warehouses and war production plants which are being placed in standby condition.

A relative humidity of 35 per cent can be maintained even to as low a temperature as 20 degrees above zero.

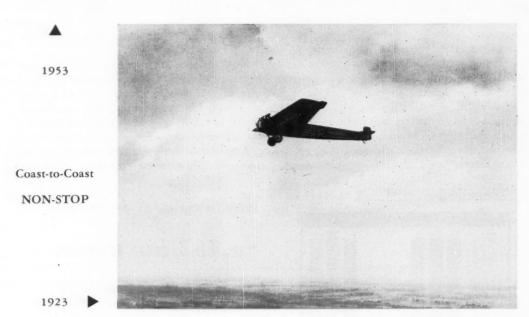
These units, manufactured by Surface Combustion Corp., Toledo, Ohio, can also be used to control humidity conditions in mines and other underground structures.

#### TV helps the elevator starter

First use of closed circuit television in operating a commercial building has been reported by the Merchandise Mart, Chicago, Ill.

The new RCA "TV Eye Camera" now helps to control rush-hour elevator traffic. People enter





and leave the Mart almost equally from the street floor and from the elevated platform entrance on the second floor.

The TV set overlooks passenger traffic on the second floor, sending the picture to the screen near the elevator starter on the first floor.

Knowing conditions on both floors, the starter is better equipped to dispatch elevators to maintain an even flow of traffic and to eliminate rush-hour "jams."

#### Stopping and starting

The fork truck with a "mind" has just entered the materials-handling field.

Safety and economy are claimed for a new development of the Yale Materials Handling Division of the Yale & Towne Manufacturing Company, Philadelphia, Pa.

The new development features combination

braking and engine stopping. When the operator leaves the truck, the driver's seat rises instantly, putting the parking brake in action. A device allows the engine to idle for three minutes, and then shuts it off automatically.

In other words, when the driver leaves the truck, brakes are applied immediately. He can return within three minutes and not have to restart the engine.

#### Quarter-in-the-slot dictation

Juke-box technique has been incorporated in a new device which is proving useful to the travelling business man.

In this case, however, the person who inserts the coin in the machine does not pay for listening. Instead, he talks.

The unit, known as Travel Talk, consists of a sound-proofed booth and a built-in Dictaphone

## You can cover the Southeast from this Richmond location

Look at a railway map and you'll see why Richmond, Va., has become such an important distributing point for the Southeast. It is on the main north-south route, and a network of lines fans out to cover the South.

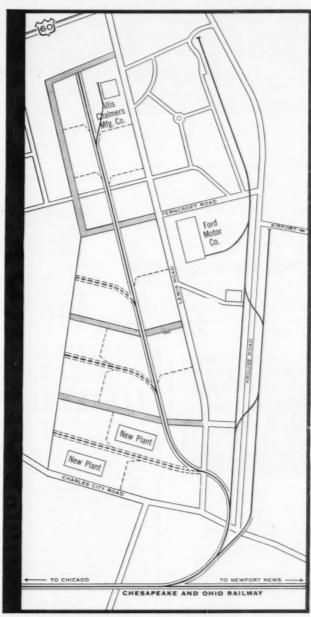
These particular locations are in the new Airport Industrial District, adjoining Byrd Field. The area is on the main line of the Chesapeake and Ohio, 70 miles from the convenient and economical port of Newport News, and with fast, direct freight and passenger service to the Midwest. By U.S. 60 it is only five miles from downtown Richmond.

The total area now under development covers about 200 acres.

Ford Motor and Allis-Chalmers have chosen it as their distributing point for the territory and two additional plants are now under construction. Spurs are already built to serve Ford and Allis-Chalmers and the other indicated trackage will be laid as soon as it is needed. The area is level and well drained and all utilities are available.

For a Pin-Point Survey giving full information write to: Chesapeake and Ohio Railway, Industrial Development Department, Cleveland 1, Ohio, Detroit, Mich., or Huntington, W. Va.





#### **Richmond Airport Industrial District**

and Installed Tracks

====== Proposed Industrial Tracks

Existing Highways

Proposed Access Roads

Suggested Lot Lines



## Chesapeake and Ohio Railway

SERVING:

VIRGINIA · WEST VIRGINIA · KENTUCKY
OHIO · INDIANA · MICHIGAN · SOUTHERN ONTARIO

## MILCOR Steel Roof Deck

in a roof that goes up fast!



Unique design permits sections to be nested and lapped quickly and easily. Sheets may be welded or anchored with clips.

3. It is VERSATILE — adaptable to any type of construction with flat, pitched, or curved roofs.

Milcor Steel Roof Deck provides additional advanges, also: High strength-to-weight ratio. Fire resistance Low maintenance cont ance. Low maintenance cost.

For help in using Milcor Steel Roof Deck efficiently, see the Milcor Manual. Write for your copy. And — call on our engineering service for assistance on your special problems.

#### INLAND STEEL PRODUCTS COMPANY

4151 WEST BURNHAM STREET . MILWAUKEE 1, WISCONSIN

BALTIMORE 5, MD., 5300 Pulaski Highway — BUFFALO 11, N. Y., 64 Rapin St. — CHICAGO 9, ILL., 4301 S. Western Blvd. — CIN-CINNAT1 25, OHIO, 3240 Spring Grove Ave. — CLEVELAND 14, OHIO, 1541 E. 38th St. — DETROIT 2, MICH., 690 Amsterdam Ave. — KANSAS CITY 41, MO., P. O. Box 918 — LOS ANGELES 58, CALIF., 4807 E. 49th St. — NEW YORK 17, N. Y., 230 Park Ave. — ST. LOUIS 10, MO., 4215 Clayton Ave.

**NOW** a New

principle

in REWIND

STARTERS



### Want a better LETTERHEAD?

Get your FREE copy of our brochure "Letter-Get your FIREZ copy of our procedure "Letter-head Logic" and turn to the check-list used by experts to gauge letterhead efficiency. If it indicates room for improving your present letterhead, Hill's 39 years' specialized experi-ence—producing the finest engraved station-ery for hundreds of famous firms—is at your disposal

Learn how Hill craftsmanship can create a letterhead you'll be proud of . . . one that truly reflects the character, personality and prestige of your firm . . . scientifically designed to assure built-in sales appeal . . . at prices much lower than you'd expect.

"Letterhead Logic," containing impressive big name" samples, is free—without obligation—to users of 5,000 or more letterheads a year. Simply jot down, on your present letter-head, the quantity your firm uses and mail to Hill now.

WRITE R.O.H.HILL,INC.

Fine Letterheads and Business Cards 270D Lafayette Street · New York 12, N.Y.

This amozing new Armstrong Starter is packed with important new features — It is 50% lighter — smoother acting — easier to service and mourn. The principle is based on the use of friction inside a conventional rope starter cup. Actuated by a cam principle it engages after 1/4 inch pull. Eliminates danger of teeth or pawls breaking — permits greater tolerances in mounting. Available with stationary or rotating screen. Competitively priced. ARMSTRONG BULLDOG STARTER HERE'S HOW IT WORKS



BULLDOS





1. Cam actuated 2. Spring load-teeth extend to grip inside of when pull stops. standard rope

If you make, sell or use products like Chains Saws \* Pumps \* Power Mowers \* Outboard Motors, you can reduce weight — improve starting — increase starter





ARMSTRONG PRODUCTS CO. Milwaukee, Wis.





dictating machine. A quarter brings forth a Dictabilt record, capable of taking fifteen minutes of dictation. In addition, it supplies an air mail stamped envelope.

A second quarter starts the machine for ten minutes of dictating. The belts are mailed to the home office for transcribing. The installations which have been madein London, Ontario, and Cleveland, Ohio-are proving popular, according to Travel Talk execu-

Future installations are planned for hotels, clubs, airports, and railroad stations.

The idea was developed by John Schumacher, of Akron, Ohio, and a recent graduate of Washington and Lee University. During his senior year he travelled on a research assignment and had need for dictating facilities.

Upon graduation, he joined with William Sherwood Howe, an executive of Willys-Overland. A factory and offices have been established at Akron.

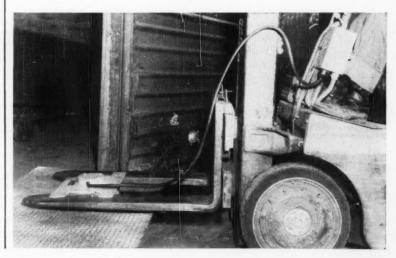
#### Up to 900 pounds

A new lifting magnet, designed by Cutler-Hammer, Inc., Milwaukee, Wisc., is for safe and easy handling of dock plates at railroad freight yards and in industrial plants.

The magnet is twelve inches in diameter, and is used in conjunction with a lift truck. When in use, the magnet rests on the forks in a special frame, and is operated by a switch on the steering column.

The magnet is energized from the battery of battery-operated lift trucks, either 32-volt or 36-volt. In the case of gasoline operated trucks, the six-volt generator and battery used for lights does the job.

The manufacturer stresses the safety features of this method of handling the steel dock plates, which weigh up to 900 pounds.





#### For tax deductions

Cutting the time of payroll work is the stated purpose job of Calcu-Tax, recently introduced after a group of office managers had contributed their ideas on the subject.

The chart gives tax deductions for employees on the weekly payroll on one line. No calculations are necessary. The person using the chart merely moves the plastic slide to the wage bracket involved and copies the figures. The producer is Calcu-Tax, New York, N. Y.

#### Tax deductibles

Starting out as an aid to the wives of professional men to keep records of tax deductible household and entertainment expenses, the "Taxwise Telephone-Engagement Handibook" has been expanded for use by executives, salesmen, and others.

The stitched volume is divided into two parts. One side has a telephone-address section which is attached to the book. This is indexed alphabetically.

The other side is indexed by days, and is to be used for keeping a record of engagements where entertainment or other tax deductible

expenses are listed. There is space for putting down business gifts, provision for four separate domestic payrolls for a year, and other data. Vital information is given concerning withholding taxes, allowable deductions, and other notes of value come March 15.

This second section can be removed from the book, and filed with income tax records. Refills for the following year will be available.

This tax-conscious volume is being produced by the Doctors' Business Bureau, Philadelphia, Pa.

#### Reducing typing errors

A blind spot on the modern typewriter is being eliminated by substituting a transparent bar for the metal bar.



The bar in question is the thin narrow strip which presses the paper against the roller. It usually has two rubber rollers at each end.

On most typewriters the bar is set in a position so that it blocks out at least one line of the material which has been typed.

The transparent bar is known as the See-Thru, and is being manufactured by The Maroth-Kennedy Corporation, Greenwich, Conn., in sizes for most typewriters. The company states that the new bar will reduce typing errors and increase the efficiency of the typist.



#### Grease resistance

Nuts are in for de luxe transportation, according to the results of six months of laboratory tests conducted by the Gaylord Container Corporation, St. Louis, Mo.

Shelled pecans of the Southern Pecan Shelling Company, San Antonio, Tex., were stored in two types of corrugated boxes. One container was of the type conventionally used. The other was treated on the interior with a grease-resistant coating developed by Gaylord to prevent nut oil from seeping through the walls.

The results are shown in the illustration. The conventional carton is at the left, showing that oil has soaked through. The contents had become rancid in odor and taste.

No penetration of oil was made on the carton at the right, which was treated with the grease-resistant coating. The company states the pecans had remained sweet.

Additional applications of the coating for food processors who have grease penetration problems are being studied. Included are manufacturers of potato chips.

#### Inventory, dictator style

Taking inventory without using a pencil or pen for recording counts and descriptions of materials may sound like heresy, but that is exactly what is being done by an increasing number of companies. The Gray Manufacturing Company reports its Audograph electronic dictating machines are being used nation-wide for "talking" the inventory job away.

Dictating inventory reports has the following advantages, Gray engineers report:

1) It eliminates pre-writing of inventory tickets;

2) By eliminating hand-writing of tickets the system saves time by doing away with the problem of errors in typing final inventory tickets from illegible hand-written tickets. A more accurate first count is obtained

3) Counting of stock by dictating machines is fast. It has the advantage of not having pre-write tickets scattered over the entire stock room for one or two weeks and avoids the problems which arise when new stock comes into the warehouse where pre-write tickets have already been done.

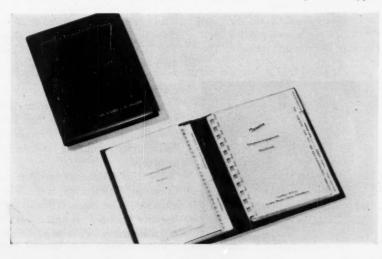
A "dry-run" procedure is recommended to familiarize employees with the equipment. Gray engineers suggest employees practise a few days and listen to their recordings so they will start from the beginning in an efficient manner.

One example of the value of dictating equipment for inventory taking purposes is provided by the Jesse Hammond Motor Co., of Tuscombia, Ala. This company is a Ford dealership, maintaining a large stock of automobile parts.

In addition to the annual inventory, the company had the problem of speeding up its semi-monthly stock orders. The process of sur-



Taking inventory of baby chickens seems easy with dictating machine.



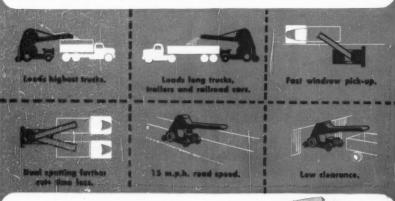


If your plant operations include loading free-flowing materials into trucks, trailers or railroad cars, you should investigate Barber-Greene Bucket Loaders. For, cost studies have proved that nothing can compe'e with the bucket loader in lowest cost loading from stock pile. The B-G Constant Flow principle virtually eliminates the human element, guaranteeing the same high rate of loading all day long.

Equipped with hydraulically controlled trimmer-conveyor, this new B-G Loader distributes a maximum load into highest trucks, long trailers and railroad cars at rates up to 3 cubic yards per minute. With its 15 m.p.h. road speed, it gets to jobs fast and quickly moves from pile to pile in a hurry. It allows you to do more — with a smaller fleet of trucks — with far fewer men.

#### SAVE MANPOWER — TRUCK TIME — MONEY

Here are a few examples of how the B-G Model 543 Loader brings new speed and versatility to truck-loading operations.



## if you want lowest cost loading ... send for catalogs

Barber-Greene Self-propelled, Self-feeding Loaders cre available in capacities from  $1\frac{1}{2}$  to 3 cubic yards per minute—with a full line of accessories. All load coal, sand, stone, fertilizer, etc., at top efficiency, Write for catalogs, Barber-Greene Company, Aurora, Illinois.



## Barber-Greene

A company of engineering and manufacturing experts, developing and building machines for loading, unloading and conveying bulk materials...for mixing and placing bituminous (black top) pavement...for ditching...for snow removal.

veying stocks on hand for each item 24 times a year and ordering additional parts when needed was time consuming and expensive when done by the traditional method of counting and making notes of parts to be reordered.

J. H. Case, an official of the company, tried a Gray Audograph on a rental basis as an experiment in taking inventory, and purchased the equipment when convinced it would repay the initial cost within a short time.

Mr. Case also reported that it very quickly became apparent that a good deal of time was saved with the new method when interruptions stopped inventory taking momentarily. Calls to the counter, to the phone, and other interruptions were not as time-consuming because he simply stopped the disc and then resumed his listing of the parts numbers exactly where he left off before the interruption.

Inventory taking is not restricted to business. Taking inventory on a modern, large-scale farm is also a continuing problem. One typical example reported concerns the use of Audograph equipment at Parmenter Reds, Inc., Franklin, Mass., producers of all breeds of poultry.

Ray E. Parmenter's employees use one of the company's Audographs for dictating reports on feather growth of thousands of chicks. Pedigreed chicks bear wingband numbers which are recorded with reports on the chick's development. A label-type microphone, with a clip to hold it on the user's shirt close to his mouth, leaves both hands free for handling the chicks.

Recorded data is transcribed onto permanent records in the farm of-fice.

#### 100 words a minute

A new teleprinter is on the market which sends and receives messages at 100 words a minute. The



manufacturer claims that the machine weighs about one-third of other units now in use, and that it has 30 per cent fewer moving parts.

Up to now use of the new teleprinter has been confined exclusively to the Army Signal Corps and other military forces.

The new printer is being produced by Kleinschmidt, Inc., Deerfield, Ill.



#### Emergency flare

A new acetylene flare, which was originally developed for railroad use, is also adaptable for any sort of after-dark emergency operations.

Included are flood conditions, highway and bridge repair work, and construction jobs.

The flare plugs into a cylinder of acetylene. It is so powerful that from a position eight feet above the ground, it throws sufficient light so that a newspaper can be read with ease at a distance of 75 feet. It is equipped with a wind screen.

The flare is a product of Air Reduction Company, Incorporated, New York, N. Y.

#### New floodlight

A new floodlight for industrial and sports area lighting has been announced by Steber Manufacturing Company, Broadview, Ill.

It is stated that improved features simplify the servicing of the lights. The fixtures are designed for use with 750 to 1000 watt lamps.

#### Portable air conditioner

Air conditioning now comes on wheels. A portable unit has just been introduced which is mounted on wheels, permitting portability as desired.

The Union Asbestos and Rubber Company, Chicago, Ill., is the manufacturer. The claim is made that the unit does not require elaborate installations or permanent fittings.

## Our Forty-eight States



ONE OF THE COUNTRY'S FINEST STATE CAPITOLS-LINCOLN, NEBRASKA-GENDREAU PHOTOGRAPH



NAME NEBRASKA COMES FROM "NEBRATHKA," MEANING FLAT AN INDIAN WORD, WATER, DESCRIBING THE PLATTE RIVER WHICH COURSES THROUGH THE STATE FROM WEST TO EAST, HISTORY IS A LITTLE VAGUE AS TO WHICH WHITE MAN FIRST LAID EYES ON THE REGION, WHOEVER IT WAS, WAS NOT GREATLY STIRRED BY THE DISCOVERY, THERE IS NO DOUBT, HOWEVER, THAT THE TERRITORY HAS REPAID THE UNITED STATES MANY TIMES ITS PRICE IN THE LOUISIANA PURCHASE, NOW, NEBRASKA RANKS 14TH IN AREA, 33RD IN POPULATION, AND 37TH IN ADMIS-SION. COMPRISING AN IMPORTANT SEGMENT OF THE COUNTRY'S AGRICULTURAL ECONOMY, THE STATE HAS THE WELCOME MAT OUT FOR A LARGER SHARE OF THE NATION'S INDUSTRY.

## NEBRASKA

THE MAJORITY of the pioneers who blazed the famed "Oregon Trail" for West Coast gold and land, failed to realize the treasure that lay under their feet as they trekked through the Platte River Valley in the territory known as Nebraska. The deep, rich, fertile earth—theirs for the taking—was settled by a mere handful, but that handful formed the nucleus of to-day's industrious Nebraskans who are the proud possessors of a farm state with an industrial future.

For a number of years following the Louisiana Purchase in 1803, the region was in the hands of a few hardy and rugged men and women, traders and missionaries. Slight growth came when the Kansas-Nebraska Act made a territory of the site in 1854, but it was not until after 1867, when Nebraska was admitted to the Union, that the real land boom started. Since then, Nebraska has grown to a population of nearly one and a half million, mainly farmers and allied workers.

Omaha, the State's largest city, was the jumping-off place for the westbound traffic. Situated on the west bank of the Missouri River, it is the Nation's fourth largest rail center and the largest retail center between Chicago and Denver. Belonging as it does to an agricultural state,



ROBERT B. CROSBY Governor

Omaha is a primary grain and milling market and the world's largest cattle market. Aside from its agricultural importance, a tremendous amount of insurance business is done in the city.

The Capital City of Lincoln is situated west and south of Omaha and is one of the loveliest capitals in the United States. Broad, tree-sheltered streets traverse the regularly laid-out city, dominated by the superb architecture of the Capitol Building. The central tower of the Capitol rises some 400 feet above street level.

Lying deep in the farm belt, near the exact geographical center of the United States, Nebraska has developed a one-sided economy. The last couple of decades have brought this problem to the fore and Nebraskans realize that such a position is not one of the best in a nation geared to high industrial output. They have natural resources of great use to industry—a vast underground reserve of water at a constant temperature of 50 to 54 degrees, low taxes and utility rates, and a good supply of reliable and adaptable workers.

The recent discoveries of gas and oil, however, have boosted the industrial outlook for Nebras-ka. The western part of the State, particularly, looks forward to a boom in the production of natural gas. Since the first discoveries, exploration and development of these resources have increased rapidly.

Many companies have already opened plants in the region and more are expected. Nebraskans will welcome them, but they do not want to overload their economy and swing the balance to the other extreme. The region offers much to the expanding economy of this country and a forward looking State like this cannot be overlooked and Nebraskans will make sure it doesn't happen.

### ADVERTISING INDEX

- A -
ADDO MACHINE CO., INC
ALAN WOOD STEEL CO
ALEXANDER HAMILTON INSTITUTE, INC
ALLEGHENY LUDLUM STEEL CORP 86
Walker & Downing, General Agency ALVA ALLEN INDUSTRIES
Townsend-Williams Inc.  ALLIED RESEARCH PRODUCTS, INC 88
Emery Adv. Corp.  AMERICAN APPRAISAL CO., THE 150
The Buchen Co.  AMERICAN CREDIT INDEMNITY CO 116
Vansant, Dugdale & Co., Inc.  AMERICAN HAIR & FELT CO 90
Oscar P. Holtzman  ARMSTRONG PRODUCTS CO
Camm, Costigan and Seitz, Inc.
AUTOMATIC ELECTRIC CO 110
Proebsting-Taylor, Inc.  AVERY ADHESIVE LABEL CORP 74
The Martin R. Klitten Co., Inc.  — B —
BAKELITE CO., A DIV. OF UNION CARBIDE & CARBON CORP Cover III
J. M. Mathes, Inc., Adv.  BALTIMORE & OHIO RAILROAD 137
The Richard A. Foley Adv. Agency, Inc.  BANKERS BOX CO. 100
Christopher, Williams & Bridges BARBER-GREENE COMPANY
The Buchen Company BARRETT-CRAVENS COMPANY
The Buchen Company
Scantlin & Co., Adv.
BETHLEHEM STEEL COMPANY 107 Jones & Brakeley, Inc.
BITUMINOUS COAL INSTITUTE
BOSTON WOVEN HOSE & RUBBER CORP
BREUER ELECTRIC MFG. CO
BROWN, L. L. PAPER CO
BROWNE-MORSE COMPANY
BULLDOG ELECTRIC PRODUCTS CO.82 & 83 Brooke, Smith, French & Dorrance, Inc.
BUNN, B. H., COMPANY
Robertson, Buckley & Gotsch, Inc. BURGESS-MANNING COMPANY 92
Merchandising Advertisers, Inc. BURROUGHS CORP
Campbell-Ewald Co. BUSINESS FLEETS, INC
J. Cunningham Cox, Inc.
CARBOLOY 89 Brooke, Smith, French & Dorrance, Inc.
CHASE NATIONAL BANK, THE
CHESAPEAKE & OHIO RAILWAY 159 Robert Conahay, Inc.
CHEVROLET MOTORS DIV., GENERAL MOTORS CORP. 122 Campbell-Ewald Co.
COLUMBIA RIBBON & CARBON MFG.
E. M. Freystadt Associates, Inc.
Vansant, Dugdale & Co., Inc.  CONSUMERS POWER CO
Commonwealth Services, Inc.  CROSS CO., THE
Clark & Bobertz, Inc.  CUTLER-HAMMER, INC
Kirkgasser-Drew, Advertising  — D —
DAVIDSON CORPORATION
DAYTON ROGERS MFG. CO

DENISON ENGINEERING CO., THE	* *
## Wheeler-Kight & Gainey, Inc.  DIAMOND POWER SPECIALTY CORP 29  Witre & Burden Advertising  DICTAPHONE CORPORATION 3  Young & Rubicam, Inc.  DRACCO CORP	DENISON ENGINEERING CO., THE 130
DICTAPHONE CORPORATION	Wheeler Kight & Gainey, Inc. DIAMOND POWER SPECIALTY CORP 29
DRACCO CORP. The Jayme Organization, Inc.  DRAKE & TOWNSEND, INC.  DRAKE & TOWNSEND, INC.  ORAGE & TOWNSEND, INC.  ORAGE & TOWNSEND, INC.  OLING.  DU PONT DE NEMOURS, E. I. & CO.  (INC.).  Batten, Barton, Durstine & Osborn, Inc.  DUN & BRADSTREET, INC.  142  DURANT MFG. CO.  — E—  EASTMAN KODAK COMPANY  (INDUSTRIAL PHOTOGRAPHIC DIV.)  J. Walter Thompson Co.  EBASCO SERVICES, INC.  Albert Frank-Guenther Law, Inc.  EOISON, THOMAS A, INC.  OTHER SPORT ELECTRIC MFG. CO., THE.  93  Winius-Brandon Company  EVANS SPECIALTY CO., INC.  91  Virginia S. Morton Advertising  EVANSVILLE COMMITTEE OF 100.  EVIS MFG. CO.  EW. Shafer & Co.  EXECUTONE, INC.  The Joseph Katz Co.  Abster & Co.  EXECUTONE, INC.  The Joseph Katz Co.  FELT & TARRANT MFG. CO.  FIELT & TARRANT MFG. CO.  FIDELITY MACHINE CO., INC.  102  The Roland G. E. Ullman Org.  FISCHBEIN, DAVE, CO.  FISCHBEIN, DAVE, CO.  FISCHBEIN, DAVE, CO.  LUBRIPLATE DIV.  E. M. Freystadt Associates, Inc.  FORCE, WILLIAM A.  92  FISKE BROS REFINING CO.  LUBRIPLATE DIV.  E. M. Freystadt Associates, Inc.  GENERAL AMERICAN TRANS-  PORTATION CORP.  (INSTITUTIONAL).  GENERAL ELECTRIC CO.  (SCHENECTADY).  G. M. Basford Co.  GENERAL REFRACTORIES CO.  BILLEWIS & Gilman, Inc.  GENERAL REFRACTORIES CO.  GENERAL REFRACTORIES CO.  SILUBRIPLATE DIV.  C. M. Haggard, Advertising  HILL, R. O. H. INC.  — H—  HANSEN, A. L. MFG. CO.  GENERAL REFRACTORIES CO.  GENERAL REFRACTORIES CO.  GENERAL REFRACTORIES CO.  GENERAL REFRACTORIES CO.  SILUBRICUTIONAL).  OH HE CO.  HULL R. O. H. INC.  The Constitution of the Colon of the Colo	DICTAPHONE CORPORATION 3
DRAKE & TOWNSEND, INC	
DU PONT DE NEMOURS, E. I. & CO.  (INC.)  Batten, Barton, Durstine & Osborn, Inc.  DUN & BRADSTREET, INC. 142  DURANT MFG. CO. 91  Keck Advertising Agency  DUREZ PLASTICS & CHEMICALS, INC. 12  Comstock & Co. 12  EASTMAN KODAK COMPANY (INDUSTRIAL PHOTOGRAPHIC DIV.)  J. Walter Thompson Co. 155  Albert Frank-Guenther Law, Inc. 101  Green-Brodie  EMERSON ELECTRIC MFG. CO., THE. 93  Winius-Brandon Company  EVANS SPECIALTY CO., INC. 91  Virginia S. Morton Advertising  EVANSVILLE COMMITTEE OF 100. 134  Keller-Crescent Co. 24  EVIS MFG. CO. 74  E. W. Shafer & Co. 14  The Joseph Katz Co. 14  The Joseph Katz Co. 16  EXECUTONE, INC. 102  The Roland G. E. Ullman Org. 102  The Roland G. E. Ullman Org. 102  FISCHBEIN, DAVE, CO. 103  FISCHBEIN, DAVE, CO. 103  FISCHBEIN, DAVE, CO. 103  FISCHBEIN, DAVE, CO. 105  FISCHBEIN, DAVE, CO. 105  FISCHBEIN, DAVE, CO. 107  FISCHBEIN, DAVE, CO. 107  FISCHBEIN, DAVE, CO. 107  FISCHBEIN, DAVE, CO. 108  FISCHBEIN, DAVE, CO. 109  FISCHBE, DAVE, D	DRAKE & TOWNSEND, INC
Batten, Barton, Durstine & Osborn, Inc.  DUN & BRADSTREET, INC. 142  DURANT MFG. CO. 91  Keck Advertising Agency  DUREZ PLASTICS & CHEMICALS, INC. 12  Comstock & Co. 12  EASTMAN KODAK COMPANY (INDUSTRIAL PHOTOGRAPHIC DIV.) 29  J. Walter Thompson Co. 155  Albert Frank-Guenther Law, Inc. 101  Green-Brodie  EMERSON ELECTRIC MFG. CO., THE. 93  Winius-Brandon Company  EVANS SPECIALTY CO., INC. 91  Virginia S. Morton Advertising  EVANSVILLE COMMITTEE OF 100. 134  Keller-Crescent Co. 14  The Joseph Katz Co. 14  The Joseph Katz Co. 14  The Joseph Katz Co. 15  FELT & TARRANT MFG. CO., 102  The Roland G. E. Ullman Org. 102  The Roland G. E. Ullman Org. 103  FISCHBEIN, DAVE, CO., 103  FISCHBEIN, DAVE, CO., 103  FISCHBEIN, DAVE, CO., 103  FISKE BROS. REFINING CO., 103  LUBRIPLATE DIV. 26  GENERAL AMERICAN TRANS-PORTATION CORP.  (INSTITUTIONAL). 68 & 69  GENERAL AMERICAN TRANS-PORTATION CORP.  (INSTITUTIONAL). 68 & 69  G. M. Easford Co. 81  Lewis & Gilman, Inc. 72  Ross Llewellyn, Inc. 74  H—  HANSEN, A. L. MFG. CO. 32  J. M. Haggard, Advertising 11  HILL, R. O. H., INC. 160  HOME STANKING EQUIPMENT CO., THE REAL Advertising MACHINE CO. 103  FISCHERAL AMERICAN TRANS-PORTATION CORP.  (INSTITUTIONAL). 68 & 69  G. M. Easford Co. 81  Lewis & Gilman, Inc. 72  Ross Llewellyn, Inc. 75  The Richard A. Foley Agency, Inc. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE REAL CO., The Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO., THE Real Fuller & Co. 110  INDUSTRIAL MARKING EQUIPMENT CO. 103  Philip I. Ross Company INDUSTRIAL MARKING EQUIPMENT CO., T	DU PONT DE NEMOURS, E. I. & CO.
DURANT MFG. CO.	Batten, Barton, Durstine & Osborn, Inc.
DUREZ PLASTICS & CHEMICALS, INC. 12 COMSTOCK & CO. — E —  EASTMAN KODAK COMPANY (INDUSTRIAL PHOTOGRAPHIC DIV.) 29 J. Walter Thompson Co. 29 J. Walter Thompson Co. 155 Albert Frank-Guenther Law, Inc. 101 Green-Brodie EMERSON ELECTRIC MFG. CO., THE. 93 Winius-Brandon Company EVANS SPECIALTY CO., INC. 91 Virginia S. Morton Advertising EVANSVILLE COMMITTEE OF 100. 134 Keller-Grescent Co. 74 E. W. Shafer & Co. 74 EXECUTONE, INC. 14 The Joseph Katz Co. 14 The Joseph Katz Co. 102 The Roland G. E. Ullman Org. 103 FISCHBEIN, DAVE, CO. 103 FISCHBEIN, DAVE, CO. 103 FISCHBEIN, DAVE, CO. 103 FISCHBEIN, DAVE, CO. 20 E. M. Freystadt Associates, Inc. 102 FORCE, WILLIAM A. 92 Philip I. Ross Co. 92 GENERAL AMERICAN TRANS-PORTATION CORP. (INSTITUTIONAL). 68 & 69 GENERAL ELECTRIC CO. (SCHENECTADY). 68 & 69 G. M. Easford Co. 102 J. M. Haggard, Advertising MILLIAN, 106 ELWIS & Gilman, Inc. 106 HONSEN AL MARKING EQUIPMENT CO., THE Roland A. Foley Agency, Inc. 100  INDUSTRIAL MARKING EQUIPMENT CO., THE RICHARD A. 106 Edwin Bird Wilson, Inc. 175 The Richard A. Foley Agency, Inc. 110  INJERTIAL MARKING EQUIPMENT CO., THE ROS Llewellyn, Inc. 160 Edwin Bird Wilson, Inc. 175 The Richard A. Foley Agency, Inc. 110  INJERTING & MAILLING MACHINE CO. 103 Philip I. Ross Company  INTERNATIONAL NICKEL CO., INC. 131 Marschalk & Patt Co., Inc. 104 MILLAND STEEL PRODUCTS CO. 106 Hoffman & York, Inc. 175 Ross Poller & Co. 107 NERTING & MAILLING MACHINE CO. 103 Philip I. Ross Company  INTERNATIONAL NICKEL CO., INC. 131 Marschalk & Patt Co., Inc. 104 Marschalk & Gilbert, Inc. 104  RONS & WUSSELL CO., INC. 131 Marschalk & Gilbert, Inc. 104  RONS & WUSSELL CO., INC. 131 Marschalk & Gilbert, Inc. 104  RONS & GUISSELL CO., INC. 131 Marschalk & Gilbert, Inc. 104  RONS & GUISSELL CO. 104	DURANT MFG. CO 91
EASTMAN KODAK COMPANY (INDUSTRIAL PHOTOGRAPHIC DIV.)	DUREZ PLASTICS & CHEMICALS, INC 12
EASTMAN KODAK COMPANY (INDUSTRIAL PHOTOGRAPHIC DIV.)  J. Walter Thompson Co.  EBASCO SERVICES, INC. Albert Frank-Guenther Law, Inc.  EDISON, THOMAS A., INC	
DIV.)	EASTMAN KODAK COMPANY
EBASCO SERVICES, INC. Albert Frank-Guenther Law, Inc. EDISON, THOMAS A., INC	DIV. 29
EDISON, THOMAS A., INC	
EMERSON ELECTRIC MFG. CO., THE. 93 Winius-Brandon Company EVANS SPECIALTY CO., INC. 91 Virginia S. Morton Advertising EVANSVILLE COMMITTEE OF 100. 134 Keller-Crescent Co. 74 EVIS MFG. CO. 74 E. W. Shafer & Co. 74 E. W. Shafer & Co. 14 The Joseph Katz Co. 14 The Joseph Katz Co. 14 The Joseph Katz Co. 15 EXECUTONE, INC. 14 The Joseph Katz Co. 16 F— F— FATE-ROOT HEATH COMPANY, THE. 99 Howard Swink Adv. Agency, Inc. 102 The Roland G. E. Ullman Org. 102 The Roland G. E. Ullman Org. 103 Fischbein Advertising Agency 103 Fischbein Advertising Agency 104 E. M. Freystadt Associates, Inc. 104 E. M. Freystadt Associates, Inc. 105 FORCE, WILLIAM A. 92 Philip I. Ross Co. 92 FORTATION CORP. (INSTITUTIONAL). 68 & 69 G. M. Easford Co. 68 GENERAL ELECTRIC CO. (SCHENECTADY). 68 & 69 G. M. Easford Co. 104 E. M. Haggard, Advertising 116 HLL, R. O. H. INC. 160 Edwin Bird Wilson, Inc. 160 Edwin Bird Wilson, Inc. 175 The Richard A. Foley Agency, Inc. 175 INJUSTRIAL MARKING EQUIPMENT CO., THE Rea, Fuller & Co. 103 Philip I. Ross Company INTERNATIONAL NICKEL CO., INC. 131 Marschalk & RUSSELL CO., INC. 131 MRONS & RUSSELL CO., INC. 104 Knight & Gilbert, Inc. 104 RONS & RUSSELL CO., INC. 104 RONS &	EDISON, THOMAS A., INC
EVANS SPECIALTY CO., INC. 91 Virginia S. Morton Advertising EVANSVILLE COMMITTEE OF 100. 134 Kelier-Crescent Co. 74 E. W. Shafer & Co. 74 E. W. Shafer & Co. 74 E. W. Shafer & Co. 14 The Joseph Katz Co. 14 The Joseph Katz Co. 14 The Joseph Katz Co. 15 FATE-ROOT HEATH COMPANY, THE 99 Howard Swink Adv. Agency, Inc. 102 The Roland G. E. Ullman Org. 102 The Roland G. E. Ullman Org. 103 Fischbein Advertising Agency 103 Fischbein Advertising Agency 103 Fischbein Advertising Agency 104 E. M. Freystadt Associates, Inc. 104 FORCE, WILLIAM A. 92 Philip I. Ross Co. 92 GENERAL AMERICAN TRANS-PORTATION CORP. (INSTITUTIONAL) 68 Weiss & Geller, Inc. 68 FORCE WILLIAM A. 92 GENERAL REFRACTORIES CO. 81 Lewis & Gilman, Inc. 64 GLOBE CO., THE 72 Ross Llewellyn, Inc. 72 Ross Llewellyn, Inc. 160 Edwin Bird Wilson, Inc. 160 Edwin Bird Wilson, Inc. 73 Rea, Fuller & Co. 160 INLAND STEEL PRODUCTS CO. 160 Hoffman & York, Inc. 173 Rea, Fuller & Co. 103 Philip I. Ross Company INTERNATIONAL NICKEL CO., INC. 131 Marschalk & Pratt Co., Inc. 104 Knight & Gilbert, Inc. 104 RONS & RUSSELL CO., INC. 131 MROSS & RUSSELL CO., INC. 131 MROSS & RUSSELL CO., INC. 104 Knight & Gilbert, Inc. 104 Ross & Gilbert, Inc. 104 Ross & RUSSELL CO., INC. 104 Ross & RUSSELL CO., INC. 104 Ross & RUSSELL CO., INC. 104 Ross & Gilbert, Inc. 104 Ross & RUSSELL CO., INC. 104 Ross & RUSSELL CO., INC. 104 Ross & Gilbert, Inc. 104 Ross	EMERSON ELECTRIC MFG. CO., THE 93
Virginia S. Morton Advertising  EVANSVILLE COMMITTEE OF 100	
Keller-Crescent Co.  EVIS MFG. CO	Virginia S. Morton Advertising
E. W. Shafer & Co.  EXECUTONE, INC	Keller-Crescent Co.
F—F  FATE-ROOT HEATH COMPANY, THE 99 Howard Swink Adv. Agency, Inc.  FELT & TARRANT MFG. CO 22 N. W. Ayer & Son, Inc.  FIDELITY MACHINE CO INC 102 The Roland G. E. Ullman Org.  FISCHBEIN, DAVE, CO 103 Fischbein Advertising Agency  FISKE BROS. REFINING CO., LUBRIPLATE DIV 26 E. M. Freystadt Associates, Inc.  FORCE, WILLIAM A 92 Philip I. Ross Co G—  GENERAL AMERICAN TRANS- PORTATION CORP. (INSTITUTIONAL) 6 & 7 Weiss & Geller, Inc.  GENERAL ELECTRIC CO. (SCHENECTADY) 68 & 69 G. M. Easford Co.  GENERAL REFRACTORIES CO 81 Lewis & Gilman, Inc.  GLOBE CO., THE 72 Ross Llewellyn, Inc.  — H—  HANSEN, A. L. MFG. CO 32 J. M. Haggard, Advertising  HILL, R. O. H. INC 160 Edwin Bird Wilson, Inc.  — I—  I-T-E CIRCUIT BREAKER CO 75 The Richard A. Foley Agency, Inc.  INDUSTRIAL MARKING EQUIPMENT CO., THE 73 Rea, Fuller & Co 160 Hoffman & York, Inc.  INSERTING & MAILING MACHINE CO. 103 Philip I. Ross Company  INTERNATIONAL NICKEL CO., INC 131 Marschalk & Pratt Co., Inc 110 RONS & RUSSELL CO., INC 131 RONS & RUSSELL CO., INC 131 RONS & RUSSELL CO., INC 104 Knight & Gilbert, Inc 104	E. W. Shafer & Co.
FATE-ROOT HEATH COMPANY, THE 99 Howard Swink Adv. Agency, Inc.  FELT & TARRANT MFG. CO 22 N. W. Ayer & Son, Inc.  FIDELITY MACHINE CO., INC 102 The Roland G. E. Ullman Org.  FISCHBEIN, DAVE, CO 103 Fischbein Advertising Agency FISKE BROS. REFINING CO., LUBRIPLATE DIV 26 E. M. Freystadt Associates, Inc.  FORCE, WILLIAM A 92 Philip I. Ross Co.  ———————————————————————————————————	The Joseph Katz Co.
Howard Swink Adv. Agency, Inc.	
FIDELITY MACHINE CO., INC	Howard Swink Adv. Agency, Inc.
FISCHBEIN, DAVE, CO.  Fischbein Advertising Agency  FISKE BROS. REFINING CO.  LUBRIPLATE DIV.  E. M. Freystadt Associates, Inc.  FORCE, WILLIAM A.  92  Philip I. Ross Co.  — G—  GENERAL AMERICAN TRANS- PORTATION CORP.  (INSTITUTIONAL).  Weiss & Geller, Inc.  GENERAL ELECTRIC CO.  (SCHENECTADY)	
FISKE BROS. REFINING CO.,  LUBRIPLATE DIV	FIDELITY MACHINE CO., INC
FORCE, WILLIAM A. 92 Philip I. Ross Co. 92 Philip I. Ross Co. 99 GENERAL AMERICAN TRANS- PORTATION CORP. (INSTITUTIONAL). 6& 7 Weiss & Geller, Inc. 6& 7 Weiss & Geller, Inc. 68 & 69 G. M. Basford Co. 68 & 69 G. M. Basford Co. 81 Lewis & Gilman, Inc. 72 Ross Llewellyn, Inc. 72 Ross Llewellyn, Inc. 72 H—HANSEN, A. L. MFG. CO. 32 J. M. Haggard, Advertising 160 Edwin Bird Wilson, Inc. 160 Edwin Bird Wilson, Inc. 75 The Richard A. Foley Agency, Inc. 175 The Richard A. Foley Agency, Inc. 175 Rea, Fuller & Co. 175 Rea, Fuller & Co. 160 Hoffman & York, Inc. 178 INSERTING & MAILING MACHINE CO. 103 Philip I. Ross Company INTERNATIONAL NICKEL CO., INC. 131 Marschalk & Pratt Co., Inc. 104 Knight & Gilbert, Inc. 104	Fischbein Advertising Agency
FORCE, WILLIAM A. 92 Philip I. Ross Co. 92 Philip I. Ross Co. 99 GENERAL AMERICAN TRANS- PORTATION CORP. (INSTITUTIONAL). 6& 7 Weiss & Geller, Inc. 6& 7 Weiss & Geller, Inc. 68 & 69 G. M. Basford Co. 68 & 69 G. M. Basford Co. 81 Lewis & Gilman, Inc. 72 Ross Llewellyn, Inc. 72 Ross Llewellyn, Inc. 72 H—HANSEN, A. L. MFG. CO. 32 J. M. Haggard, Advertising 160 Edwin Bird Wilson, Inc. 160 Edwin Bird Wilson, Inc. 75 The Richard A. Foley Agency, Inc. 175 The Richard A. Foley Agency, Inc. 175 Rea, Fuller & Co. 175 Rea, Fuller & Co. 160 Hoffman & York, Inc. 178 INSERTING & MAILING MACHINE CO. 103 Philip I. Ross Company INTERNATIONAL NICKEL CO., INC. 131 Marschalk & Pratt Co., Inc. 104 Knight & Gilbert, Inc. 104	FISKE BROS. REFINING CO., LUBRIPLATE DIV
GENERAL AMERICAN TRANS- PORTATION CORP. (INSTITUTIONAL)	FORCE, WILLIAM A
GENERAL ELECTRIC CO. (SCHENECTADY)	
GENERAL ELECTRIC CO. (SCHENECTADY)	PORTATION CORP. (INSTITUTIONAL)
GENERAL REFRACTORIES CO	
Lewis & Gilman, Inc.  GLOBE CO., THE	(SCHENECTADY)
HANSEN, A. L. MFG. CO	Lewis & Gilman, Inc.
HANSEN, A. L. MFG. CO	GLOBE CO., THE
J. M. Haggard, Advertising HILL, R. O. H., INC	— H —
1 - 1 -   1 -	HANSEN, A. L. MFG. CO
1 - 1 -   1 -	HILL, R. O. H., INC
INDUSTRIAL MARKING EQUIPMENT CO., THE	-1-
INLAND STEEL PRODUCTS CO	I-T-E CIRCUIT BREAKER CO
INLAND STEEL PRODUCTS CO	INDUSTRIAL MARKING EQUIPMENT CO., THE
INSERTING & MAILING MACHINE CO. 103 Philip I. Ross Company INTERNATIONAL NICKEL CO., INC 131 Marschalk & Pratt Co., Inc 104 RONS & RUSSELL CO	INLAND STEEL PRODUCTS CO 160
INTERNATIONAL NICKEL CO., INC 131 Marschalk & Pratt Co., Inc.  IRONS & RUSSELL CO	INSERTING & MAILING MACHINE CO. 103
IRONS & RUSSELL CO	INTERNATIONAL NICKEL CO., INC. 131
	IRONS & RUSSELL CO 104
	ISLAND EQUIPMENT CORP

-1-
J. J. K. COPY ART PHOTOGRAPHERS 73 Arthur Pine Assoc.
JARECKI MACHINE & TOOL CO 70 The Jaqua Company
JOURNAL OF COMMERCE, THE 105 Charles W. Hoyt Co., Inc.
— K — KELLER TOOL CO
The Fensholt Company
KELLOGG SWITCHBOARD & SUPPLY CO
KINNEAR MFG. CO., THE 104 Wheeler, Kight & Gainey, Inc.
KRICK, DR. IRVING P
— L — LE FEBURE CORP
Chester A. Ettinger Advertising Agency
LIQUIDOMETER CORP., INC 166 Lucerna Co., Inc.
LOWRANCE QUAIL FARM
LUBRIPLATE DIV., FISKE BROS. REFINING CO
LYCOMING DIVISIONS—AVCO MFG. CORP
— M —
MAGLINE, INC
MAGNESIUM CO. OF AMERICA 20 Marsteller, Gebhardt & Reed, Inc.
MANIFOLD SUPPLIES COMPANY 105 Hart Lehman Advertising
MARATHON CORPORATION 105 J. A. Cormack, Advertising
MARSH STENCIL MACHINE CO 148 Krupnick & Associates, Inc.
MARSH & McLENNAN, INC
MASTER ELECTRIC CO., THE 23 The Parker Adv. Co.
MATHEWS CONVEYER COMPANY 145 Meek & Thomas, Inc.
METAL ARTS COMPANY, INC 148 Hutchins Advertising Co., Inc.
MILWAUKEE DUSTLESS BRUSH CO 72 Al Herr Advertising Agency Inc.
MISSISSIPPI GLASS COMPANY 115 Ralph Smith Advertising Agency
MOLINE TOOL CO
MONROE COMPANY, THE 160 Lessing Advertising Company, Inc.
MONSANTO CHEMICAL CO., PLASTICS DIV. 65 Gardner Advertising Co.
MORAINE PRODUCTS DIV., GENERAL MOTORS CORP
Campbell-Ewald Co.
NATIONAL REQUIREMENTS SERVICE 92
NATIONAL TRUCK LEASING SYSTEM 73 W. S. Kirkland, Advertising
NEW YORK STATE DEPT. OF COMMERCE Batten, Barton, Durstine & Osborn, Inc.
NORFOLK & WESTERN RAILWAY 138 Houck & Co., Inc.
-0-
OBERDORFER FOUNDRIES, INC 106 Richards & Webb, Inc.
OHIO CRANKSHAFT CO
OILJACK MANUFACTURING CO., INC 111 Kenyon-Baker Co., Inc.
OREGON LUMBER COMPANY 66 Pacific National Advertising Agency
OXFORD FILING SUPPLY CO., INC 91 Joseph Reiss Associates
— P —
PEERLESS PHOTO PRODUCTS, INC 15 John Mather Lupton Co., Inc.
PITNEY-BOWES, INC

PLYMOUTH LOCOMOTIVE WORKS 99 Howard Swink Advertising Agency, Inc.
PRAT-DANIEL CORP
— Q — R —  RANSBURG ELECTRIC—COATING CORP. 73  H. L. Ross Adv. & Publicity
RAYMOND CORP., THE
RECORDAK (SUBSIDIARY OF EASTMAN KODAK COMPANY) 151 J. Walter Thompson Co.
REMINGTON RAND, INC
REVERE COPPER & BRASS, INC 8 St. Georges & Keyes, Inc.
REVOLVATOR CO
RISING PAPER COMPANY 78 Gordon Baird Associates, Inc.
ROURA IRON WORKS, INC
ROYAL BANK OF CANADA, THE 72 Albert Frank-Guenther Law, Inc.
RYERSON, JOSEPH T. & SON, INC 18 Aubrey, Finlay, Marley & Hodgson, Inc.
— s —
SCHLEGEL MANUFACTURING CO 64 Grant Advertising, Inc.
SCHMIEG INDUSTRIES CO., INC 116 Alfred B. Caldwell, Inc.
SERVICE CASTER & TRUCK CORP 71 Guy C. Core Co.
SHREDMASTER CORP., THE
SIGNODE STEEL STRAPPING COMPANY
SMITH-CORONA INC
SPOT CARBON PRODUCTS 32
Myron Jonas Company  SYLVANIA ELECTRIC PRODUCTS, INC 30
Cecil & Presbrey, Inc.  SYNTRON COMPANY
— T —
TEXAS CO., THE
— U —
UNION PACIFIC RAILROAD 126 The Caples Co.
UNITED CHROMIUM, INC
UNITED STATES RUBBER COMPANY 19 Fletcher D. Richards, Inc.
— V — VEEDER-ROOT, INC
Sutherland-Abbott, Inc.
VICKERS, INCORPORATED 129 Witte & Burden
VISIRECORD, INC
WAGNER ELECTRIC CORPORATION 74
Arthur R. Mogge, Inc. WALES-STRIPPIT CORPORATION 165
Horace A. Laney WEBER ADDRESSING MACHINE CO 96
WELLINGTON SEARS CO
WEST BEND EQUIPMENT CORP 26 Morrison-Greene-Seymour, Inc.
WEST-DEMPSTER COMPANY 150 Wallace-Lindeman Inc.
WEST DISINFECTING COMPANY 11 G. M. Basford Co.
WHITING CORPORATION
- X - Y - Z -
YODER COMPANY, THE
YOUNGSTOWN SHEET & TUBE
The Griswold-Eshleman Co.



WALES FABRICATOR for punching, notching and nibbling



WALES DRILLING MACHINE for locating drilling, reaming and boring.



WALES TWIN COLUMN PRESS for punching, blanking, forming, drawing and bending.



WALES TRU-EDGE SHEAR

for beading, folding, slotting, flanging, louver cutting, straight line and irregular circle cutting.

• There is a Wales Machine to do one or more of the above operations with greater time-saving efficiencies.

For example, the Wales Sheet Metal Fabricator is designed to punch, notch and nibble up to 165 strokes per minute. Wales "Quick Change" holder permits changing of punches and dies in a matter of seconds. Write for Wales Machinery Catalogs TODAY

#### WALES-STRIPPIT CORPORATION

George F. Wales, Chairman 392 Payne Ave., North Tonawanda, N. Y. (Between Buffalo and Niagara Falls) Wales-Strippit of Canada Ltd., Hamilton, Ontario Specialists in Punching and Notching Equipment

#### **QUIZ ANSWERS**

Quiz begins on page 120

1. c) Income Taxes

2. These are above average: b) Tobacco (61); e) Leather (46); f) Electrical machinery (39). These are below average: d) Food (25); c) Paper (24); a) Ordnance (20); g) Furniture (17); Petroleum and

3. Four are: Brinell, Mohs, Rockwell, and Vickers.

4. a) In a metalworking plant, "pickle liquor" is the acid solution used to remove scale from metal surfaces. Naturally, it has to be drained off or changed occasionally. b) In a machine shop, a "dog" is a lathe adapter, used to hold the part being machined. c) In a foundry, the "gate" is the excess metal which must be removed after casting. d) in a machine shop-or wherever machinery is used, "worm" is short for "worm gear," a type of gear frequently used in driving mechanisms.

5. The textile industry. Rayon yarns, for instance, are sold in both "cakes" (annular mats) and "cones" (conical spools). "Glace goods" are fabrics given a special lustrous fin-

6. c) 1,285 to be exact.

7. a) Sodium b) Tungsten c) Antimony d) Tin e) Plutonium f) Tellurium.

8. a) Great Seal. b) Lincoln Memorial, c) White House, d) Capitol.

9. b) \$30 billion. Actual amount was placed at \$30,691 million.

10. a) Methods for non-destructive testing. b) Types of conveyors. c) Types of magnets. d) "Rare" metals which are looking for new jobs.

11. a) Pressure. "Bar" means weight or pressure. Isobar generally refers to a line of equal barometric pressure. b) Parts. Isomers are chemical compounds having the same parts (that is, composed of the same elements in the same proportion), but differing in structure. c) Place. An isotope is one of two or more forms of an element, occupying the same place on the periodic table of elements, but differing slightly in mass or radioactive characteristics. 12. a) Titanium b) Dynel c) Polyethylene.

13. a) 3. b) 7. c) 5. d) 6. e) 2. f) 1. g) 4.

14. a) 6. b) 5. c) 7. d) 3. e) 8. f) 9. g) 1. h) 10. i) 2. j) 4.

## STOP PROFIT LOSS with Interpretative WEATHER ADVICE



WEATHER PROBLEM: An off-shore well blowout soared flames 200 feet and endangered another and newly completed capped well lying in the wind-blown path of the inferno. If the "Christmas tree" atop the new well's rig melted, it would spew thousands of tons of oil into the Gulf, making literally a sea of fire. Would the wind shift the searing flames away from the new well long enough for men to seal off the fire below the water's surface?

ANSWER: The "blowout" caught fire just as the southeast Trades were becoming seasonally well established. Desperately needed was a cold front that would cause the wind to shift to the northwest, blowing the flames away from the endangered well. Client executive\* made midnight phone call to Krick offices. Forecast was for a weak front 18 hours hence that would result in a wind shift for about two hours.

PROFIT RESULT: Damage control can't be properly classified as a profit function, yet with the executive obliged to assume the responsibility for \$30,000 worth of man hours, equipment and barges, the need for complete accuracy of the forecast was basic. The cold front came in on schedule; the well was saved and the money spent to cap the blowout was well spent.

\*Name upon request

Weather affects your business...your profits

Member National Assn. Industrial Meteorologists Memo to Dr. Krick: How can your service help our business? Please send facts.

#### IRVING P. KRICK Ph.D.

Meteorological Consultant 462 So. Broadway, Denver 9, Colorado The oldest and largest private weather consulting service in the world, specializing in interpretative advisories for executives.

### Marsh & McLennan

Insurance Brokers

CONSULTING ACTUARIES AVERAGE ADJUSTERS

Chicago New York San Francisco Minneapolis Detroit Boston Los Angeles Toronto Pittsburgh Seattle Vancouver St. Louis Indianapolis Montreal St. Paul Duluth Portland Buffalo Atlanta Calgary Washington Tulsa New Orleans Phoenix Milwaukee Cleveland Havana London



OF ALL KINDS

• 100% AUTOMATIC

APPROVED BY UNDERWRITERS' LABORATORIES

WRITE FOR COMPLETE DETAILS

39-17 SKILLMAN AVE., LONG ISLAND CITY, IN.Y.

## ankels were this plant's big location problem...WHAT'S YOURS?



A midwest manufacturer of durable goods wanted to locate a new plant in the high-income northeast area, as near as possible to his best potential markets. He took his problem to the Industrial Location Service of the State of New York. Within a short time he had complete, confidential data which enabled him to determine the most con-centrated markets, and to select the most efficient location from which to reach them.

You can get complete, accurate and confidential information-without obligation-from the Industrial Location Service, on the following important site factors: Labor, sites, raw materials, transportation, community services, markets, power and fuel, available buildings, and state regulations.

GET FREE BROCHURE: "Industrial Location Services." Also detailed physical map of N. Y. State. Write New York State Department of Commerce, Room 718, 112 State St., Albany, N. Y.

**Industrial Location Service of New York State** 

"WE DON'T SELL SITES-WE MATCH NEEDS"

### **DUN'S REVIEW** and Modern Industry

NORMAN C. FIRTH, Editor and Publishing Director

VIOLA V. ANDERSON, Administrative Assistant
ELDRIDGE HAYNES H. E. BLANK, JR. ELDRIDGE HAYNES Editorial Counselor

#### EDITORIAL STAFF

RICHARD L. KRAYBILL, Managing Editor CLARENCE SWITZER. Art Director

Industrial Editor Annesta R. Gardner Employer Relations Editor

ALFRED G. LARKE Executive Methods Editor MARGARET L. IONES

Business Conditions Editor H. LORRAINE CARSON

Statistician JOSEPH A. D'ANDREA

Marketing Editor JAMES K. BLAKE

Associate Editors

HOWARD F. WEEKS ETHEL KEEGAN JOHN DREXLER THOMAS KENNY GENEVIEVE LOESCH

Contributing Editors

EDWIN B. GEORGE

A. M. SULLIVAN

Production Assistants: ADRIENNE O'RYAN; CLAIRE BENEDICT

WALTER F. GRUENINGER, Circulation Director \*\*\*\*\*\*

#### ADVERTISING STAFF

ALVAH B. WHEELER Advertising Director

ALEX J. DUGHI, JR. Sales Manager

At New York: George Maturniak John H. Phillips Philip W. Murphy MARK McDonald Frederic A. Ewald Haring Chandon

At Chicago (300 W. Adams St.): JOHN KROM RALPH O. McGraw

At Cleveland (Terminal Tower): JOHN S. GOEBEL

At Detroit (Cadillac Tower):

CARL NEPPACH, JR.

In the Southwest (505 N. Ervay St., Dallas):
ED F. WRIGHT, Publishers' Representative

On the Pacific Coast (57 Post St., San Francisco, and 2330 West Third St., Los Angeles):
ROBERT W. WALKER CO.

PUBLISHED monthly by Dun & Bradstreet Publications Corp-Published monthly by Dun & Bradstreet Publications Corporation. Publication office: 300 West Adams Street, Chicago 90, Ill. Editorial, advertising, and subscription offices: 99 Church Street, New York 8, N.Y. Digby 9-3300. J. Wilson Newman, President; Norman C. Firth, Alvah B. Wheeler, Alex J. Dughi, Jr., Vice-Presidents; Arthur Garrett, Treasurer; Owen A. Sheffield, Secretary; Viola V. Anderson, Assistant Secretary. Directors: Fred H. Brockett, Alex J. Dughi, Jr.; Norman C. Firth, Roy A. Foulke, Arthur Garrett, J. Wilson Newman, Alvah B. Wheeler, and Arthur D. Whiteside.

Subscription: \$5 a year in U.S.A. and Possessions, Canada, and Pan American Union. Elsewhere \$10. Single copy,

Correspondence generally should be addressed to the offices in New York . . . . Advertisers should send proof and plates with copy instructions directly to R. F. Bogner, Operating Department, Dun's Review and Modern Industry, 350 East 22nd Street, Chicago 16. Advertisements to be set by publication must be sent with complete instructions to Production Department, Dun's Review and Modern Industry, 99 Church Street, New York 8, N. Y.

THIS MAGAZINE is indexed in the Industrial Arts Index, in the Public Affairs Information Service, and also annually in an index available upon request to the publishers . . . . Member CCA, NBPA, SBME, and MPA. Printed in U. S. A.



## ...wrappers with BAKELITE Polyethylene added

Products of *all* kinds move off shelves fast when wrappers look brighter, fresher, more colorful!

Blending Bakelite Polyethylene Resins with wrapper waxes gives higher gloss, which intensifies colors. In addition, texture is improved... tensile strength increased. Wrappers seal better... have greater scuff and blocking resistance... withstand cracking at low temperatures. And food is safe—Bakelite Polyethylene is inert, can be relatively odorless and tasteless!

This is just one use of Bakelite Polyethylene. As a resin coating, this outstanding material can also be applied to cloth and metal. It can be calendered to make sheeting and film, molded and extruded—making possible new and improved products ranging from spray deodorant squeeze bottles to wire insulation. Bakelite Polyethylene comes in a wide range of colors. It's tough,

flexible through temperature extremes; has excellent dielectric properties; offers high resistance to chemicals, water, oil and grease.

Why not investigate BAKELITE Polyethylene in terms of *your* product? Get full information on uses and properties by writing Dept. SP-6.

## BAKELITE Polyethylene

BAKELITE COMPANY, A Division of Union Carbide and Carbon Corporation 122 30 East 42nd Street, New York 17, N. Y.



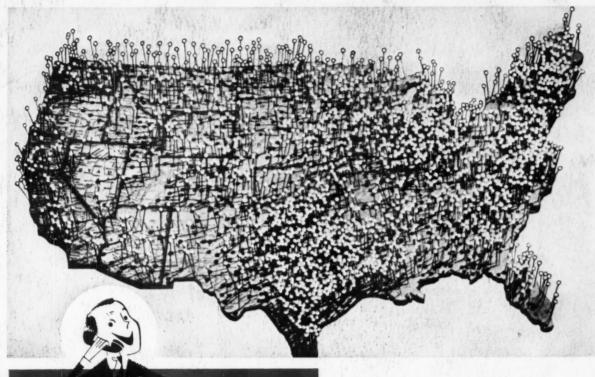
ONLY THREE IN 1200 of these tumblers were broken in a year of institutional service. Molded from Bakelite C-1 Plastic, they're tough, clear, lightweight, and resistant to soaps, food chemicals. "Crystalon" tumblers are molded by International Molded Plastics, Inc., Cleveland, Ohio.

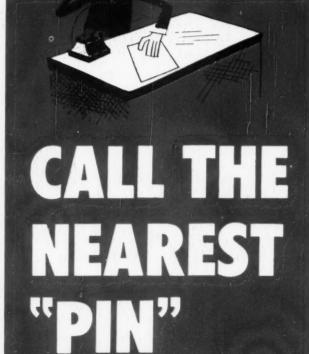


FLASHLIGHT LENS GUARD molded of Bakelitt Polyethylene is tough and resilient, absorb shocks. Translucent red polyethylene also glow when light is on, providing safety signal. Molded by Sterling Molders, Inc., Buffalo 7, N. Y., fo National Carbon Co., New York, N. Y.



LABEL HOLDERS for shelves and bins are made of transparent Bakelter Rigid Vinyl Sheet material. Strips can be cut to desired length. Pressure-sensitive adhesive on back sticks them to shelf edges. Labels are easily inserted, Distributed by Ferma Products Co., Detroit 6, Mich.





Each pin on the map represents a Texaco Distributing Plant. To serve you, wherever you are, there are more than 2,000 of them throughout the 48 States.

A call to the nearest "pin" will bring you important help in stepping up your production and bringing down your unit costs.

Made-for-the-job Texaco Lubricants and famous Texaco Lubrication Engineering Service bring these benefits daily to plants in every branch of industry.

Find out what they can do for you. No cost, no obligation.

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



**TEXACO** Lubricants, Fuels and Lubrication Engineering Service

TUNE IN . . . METROPOLITAN OPERA radio broadcasts every Saturday afternoon. See newspaper for time and station.